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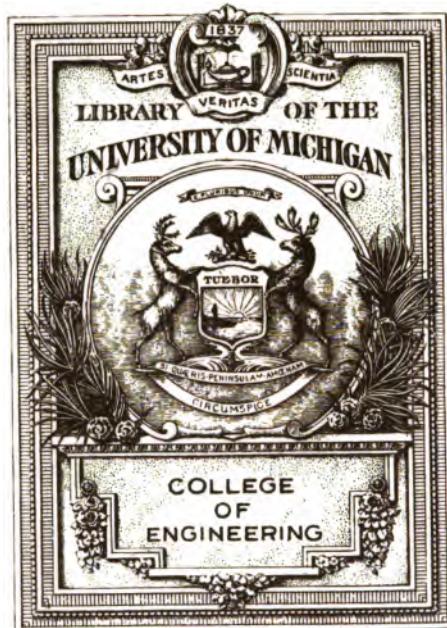
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New York (State) Water supply commission

SECOND ANNUAL REPORT

OF THE

State Water Supply Commission

OF

NEW YORK,

Compliments of

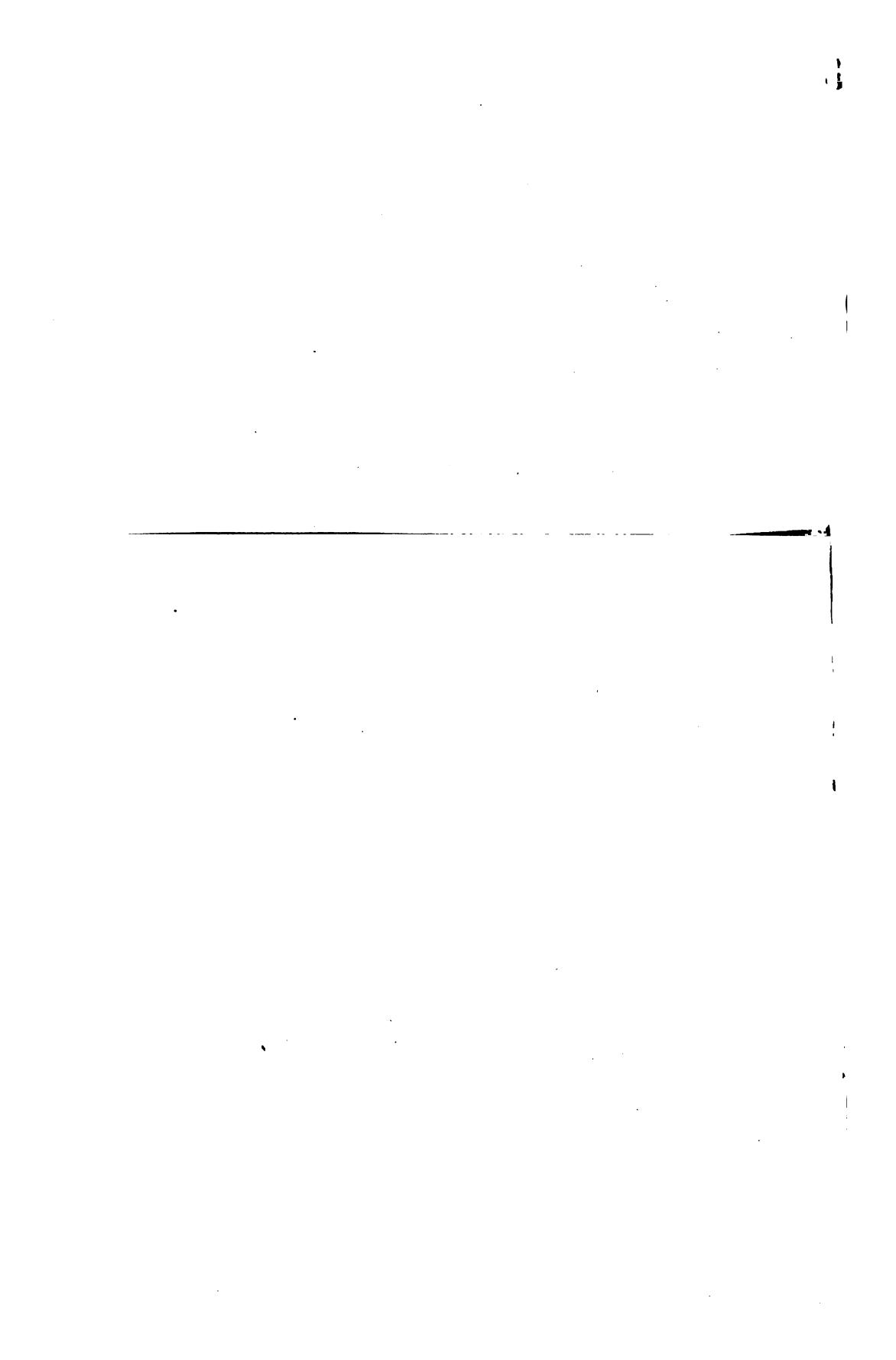
State Water Supply Commission



ALBANY

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1907



New York (State) Water Supply Commission

SECOND ANNUAL REPORT

OF THE

State Water Supply Commission

OF

NEW YORK,

For Year Ending February 1, 1907.

TRANSMITTED TO THE LEGISLATURE FEBRUARY 1, 1907.



ALBANY

J. B. LYON COMPANY, STATE PRINTERS

1907



STATE OF NEW YORK,

No. 27.

IN ASSEMBLY

FEBRUARY 1, 1907.

Second Annual Report of the State Water Supply Commission, New York

TO THE LEGISLATURE

ALBANY, February 1, 1907.

To the Honorable JAMES W. WADSWORTH, JR., *Speaker of the Assembly of the State of New York:*

In compliance with the requirements of chapter 723 of the Laws of 1905, as amended by chapter 415 of the Laws of 1906, we have the honor to submit herewith the report of the State Water Supply Commission.

Very respectfully,

HENRY H. PERSONS,

President.

ERNST J. LEDERLE,

JOHN A. SLEICHER,

MILO M. ACKER,

CHARLES DAVIS.

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STATE WATER SUPPLY COMMISSION.

Members of Commission Appointed by the Governor.

HENRY H. PERSONS, President.....	East Aurora
ERNST J. LEDERLE.....	New York city
JOHN A. SLEICHER.....	New York city
MILO M. ACKER.....	Hornell
CHARLES DAVIS	Saugerties
WALLACE C. JOHNSON*.....	Niagara Falls
MYRON S. FALK, Consulting Engineer.....	New York city
JOHN C. GRAVES, Secretary.....	Buffalo
WALTER McCULLOH, Engineer in charge Can-	
aseraga Creek Improvement.....	Niagara Falls

* Transferred from River Improvement Commission; died at Niagara Falls, December 15, 1906.

REPORT.

ALBANY, February 1, 1907.

To the Legislature of the State of New York:

The State Water Supply Commission submits herewith its second annual report, pursuant to chapter 723 of the Laws of 1905.

At the time of its first annual report, the Commission was engaged upon the hearing of the application of the city of New York for a new and additional water supply. Many of the questions involved in that application were new, and required careful consideration of the rights and interests of all the people affected thereby.

The plans provided for the construction at Ashoken, in Ulster county, of a large impounding reservoir which will overflow the entire Esopus valley for many miles, destroy all the property, both public and private, in the flooded area, and also depreciate to a greater or less extent the value of adjacent property. The injury to property not actually taken would in most cases be indirect and for this the law provided no remedy. It was in dealing with this class of damages that the Commission met with serious difficulty, and with persistent opposition from the city of New York.

The proof given at the hearings clearly showed that it was important for the city of New York to devise a broad and comprehensive scheme for its future water supply, and this could be done most advantageously by going into the Catskill mountain region, and there purchasing the property rights of those communities that would be affected.

Before the city could proceed to execute the plans for such a scheme, this Commission was required to "determine whether the plans proposed are justified by public necessity, and are just and equitable to the other municipalities and civil divisions of the State affected thereby, and to the inhabitants thereof, particular

consideration being given to their present and future necessities for sources of water supply, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans."

This command of section 3 of chapter 723 of the Laws of 1905 was so clear, and its requirements for the protection of the communities and peoples, whose property might be taken or injured was so just, that it was evident those rights would best be protected by amending sections 3, 11, 13, 17, 31, 35, 41 and 42 of chapter 724 of the Laws of 1905, the law creating the Board of Water Supply of the city of New York, and defining its powers and duties. Such changes in the law as would protect the rights of the municipalities and peoples affected thereby, were recommended by the Commission, were approved by the Board of Water Supply of the city of New York and enacted into law by chapter 314 of the Laws of 1906. The amendments related only to those counties to which New York city proposed to go for additional water, and are eminently fair and just to all persons interested. The amendment changing the rule of law in regard to the payment of indirect damages in cases like these commended itself to the approval of all thoughtful men.

With the law thus amended, the application of the city of New York was modified, and as modified approved on the 14th day of May, 1906; the decision will be found in Appendix III.

Under the authority thus given, the city of New York has entered upon its work of constructing the greatest of municipal water plants, in an interior county one hundred miles distant, without friction with the people of Ulster county, but with their apparent sympathy and help; a great contrast to the feeling existing in Dutchess and Suffolk counties which procured legislation adverse to the city of New York.

This legislation, interfering as it does with the efforts of New York city to increase its water supply, should be repealed, and without doubt could be, if provisions similar to those recommended by the Commission in connection with the application to take the waters of the Catskill region were made to protect those communities and properties.

Prior to the amendment of chapter 723 of the Laws of 1905 by chapter 415 of the Laws of 1906, the Commission had no control over private water companies. While the law compelled mu-

nicipal corporations to make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, by reason of the execution of its plans for a new and additional source of water supply, it imposed no such provisions upon private water companies. This defect in the laws was pointed out by Governor Higgins in his last annual message, and corrected by chapter 415 of the Laws of 1906. The law as it now stands compels all persons or corporations which seek to extend their plants by destroying or damaging the property of others to pay the damages occasioned thereby.

During the present year applications have been made to this Commission by the cities of Lockport, Gloversville and Plattsburg, and the villages of Millbrook, White Plains, Malone, Holland Patent, Brewster, Bergen, Carthage and the Hannacroix Water Company of RAVENA and Coeymans, for new and additional sources of water supply. These applications have been accompanied by analyses of the water to be taken, and the Commission has made in each case an inspection of the location of the proposed dam, reservoir or wells before hearing the interested parties.

It has approved of the plans of the cities of New York, Oneida, Lockport and Gloversville, and the villages of Lyons Falls, Constableville, White Plains, Holland Patent and Bergen and filed decisions of such approval in the office of the Commission.

Attention should here be called to the fact that with the approval of the plans of any company or municipality for a water supply, the power of this Commission ceases. Under the present law it has no authority for future supervision, and the water company or municipality may, or may not, protect and keep pure its water supply. But a small percentage of the parties controlling the water supply of cities and villages in this State make regular tests to detect possible contamination of the water. On the contrary, it is the usual practice of both private companies and of municipalities to delay action until diseases referable to the water supply have become general in the community, before making an inspection of its watershed or making such necessary tests as will determine the purity and safety of the water furnished by them.

Such facts cannot be overlooked in connection with the steady and rapid increase of typhoid fever as shown in the report of our consulting engineer, Myron S. Falk (see appendix). It seems clear that his recommendations, concerning proper super-

vision of the conditions of the water plants, whether public or private, should be adopted.

Especially suggestive are his recommendations in reference to the establishment of an engineering bureau to advise, at little or no expense to them, with officials of communities that may desire to improve their water supply. Such a bureau in charge of the consulting engineer of this Commission would be of great service in the efforts now being so generally made to improve the sanitary conditions and the water supply of every part of the State. It might be added that during the past year one of the members of this Commission, Dr. Lederle, has gratuitously made chemical and bacteriological examinations of the water supplies of smaller villages whose applications have come before this Commission, and this privilege of free examination of available waters will be continued this year in considering the formal applications from such smaller municipalities for the approval of plans for providing new and additional supplies of water. We regard this work as of the utmost importance and recommend that additional facilities to carry it out be provided promptly.

Prior to the passage of the act creating this Commission, there was no way provided to conserve and protect the rights and property of private water companies supplying water to municipalities.

The law creating this Commission provides that no municipality should have power to acquire, take or condemn lands for any new or additional sources of water supply, until it shall have shown to this Commission, among other things, that its plans were justified by *public necessity*, and that the plans presented made fair and equitable provisions for the determination and payment of any and all damages to persons and property, both *direct* and *indirect*, which would result from the execution of the proposed work of the municipality. This provision has worked an equitable and just solution of the problems which arise when a municipality seeks to establish its own water system, in instances where a private water company is at the same time rendering adequate service.

In the matter of the application of the village of Malone, the result reached by agreement between the village and the Malone Water Company clearly illustrates the value of the law and justifies the work of the Commission. (See decision on application of Malone village, Appendix III.)

SEWAGE DISPOSAL.

By section 6 of chapter 723 of the Laws of 1905 the Commission is directed to report the present disposition of sewage of each municipal corporation and other civil division of the State.

The information gathered and the inspections made, however, prove that no general effort has been made in this State for the purification of sewage. The usual manner of sewage disposal is to get rid of it in the quickest and cheapest way, without regard to the welfare of other individuals or municipalities.

In villages, there is a general use of cesspools which contaminate the underground streams that feed the wells from which a great majority of the people derive water for domestic purposes. Where cesspools are not installed, the waste is allowed to flow on the surface of the ground and thus every year the ground water is becoming more contaminated because of this thoughtless disposal of sewage.

Many larger villages and cities pour the contents of their sewers into open water courses and thus year after year sewage is contaminating more and more the potable waters of the State.

How to correct this unsanitary condition of things is a question which will require careful study, but that it must be corrected, and our rivers and streams kept pure, is clear to all who are interested in the public welfare.

So urgent is the need for prompt and drastic action in this matter that a committee of public spirited citizens has been organized in New York city to appeal for more effective, remedial legislation, an appeal that in its purpose has the hearty approval of this Commission. It is clearly in line with the recommendation submitted in the first annual report of this body.

The present disposal of sewage is calculated, more than any other single factor, to pollute the lakes and streams which are now, or must ultimately be, the sources of water supply for communities along their banks.

We must bear in mind the further pollution which is constantly increasing from manufacturing waste. The tendency to make our water courses the receptacles for waste and filth is increasing. It is already in evidence that, within a moderate period, the great metropolis must, in addition to the supply provided by the Catskills, go to the waters of the upper Hudson to meet the require-

ments of its constantly growing population. It needs no argument to demonstrate that, aside from the health of the communities, the question of the development of our cities, and of their business interests, of their growth and proper sanitation, must all be involved in consideration of this matter.

The facts presented in the courts in reference to the pollution of Lake Champlain and the rivers tributary to it indicate that some of the best of the large fresh water bodies in the State, upon which many communities are depending and many more may be depending in the near future for their water supply, are being polluted. No water course in the State and no lake of any dimension is entirely free from this abomination. In other countries, efforts to prevent the pollution of water courses have been successfully carried on until some of the foulest rivers and streams have been redeemed. If this work is to be done in our own State, no time should be lost in initiating it with all the forces of the Commonwealth behind the movement.

We recognize the fact that it may be impracticable wholly to prevent the pollution of our water courses by the sewage and manufacturing waste of cities and villages along their banks, but the State can at least take more effective measures to reduce the pollution to the minimum, and aim ultimately at its practical elimination.

RIVER IMPROVEMENT.

The work of this Commission was greatly enlarged and extended in a new direction by chapter 418 of the Laws of 1906. The powers and duties of the River Improvement Commission, as originally created, were transferred to this Commission. The law making such transfer authorizes the Commission to continue, complete and finish all pending proceedings.

The River Improvement Commission originally consisted of State officers and an engineer appointed by the Governor, and was authorized, when requested by a petition of a city, county, town or village located upon any river or water course, or any individual possessing riparian rights thereon, which showed that the restricted or unrestricted flow thereof was a menace to the public health and safety and that it was necessary to preserve the public health to regulate the flow thereof, to determine in the manner provided by this statute whether the regulation of such flow was of sufficient importance to the public health or safety to warrant the interference of the State.

The law also provided that if the Commission finds that the flow of the river referred to in the petition is of sufficient importance to the public health or safety to warrant the interference of the State in regulating such flow, then the Commission shall make maps and plans showing how improvements can be made and shall estimate the cost thereof, and then, with the approval of the Legislature, make such improvements and assess the costs thereof upon the property benefited. This duty is now imposed upon this Commission.

During the year 1905, several petitions were made to the River Improvement Commission and public hearings had thereon, as follows:

CANASERAGA CREEK.

The petition for the improvement of Canaseraga creek in the towns of Northampton, Sparta, West Sparta, Groveland and Mount Morris in the county of Livingston, was authorized, and preliminary plans for the improvement of the same were made. These preliminary plans by a resolution of the Commission were made the final plans and filed in the county clerk's office of Livingston county and were approved by the Legislature by chapter 419 of the Laws of 1906, and the Commission authorized "to do all things necessary for the completion of the work required for said improvement and regulation of the flow of Canaseraga creek in the towns and county aforesaid as *singly* directed by such final order to be made, and in conformity with the final map, detailed plans, specifications and estimates prepared by said River Improvement Commission, as duly certified by them and filed in the office of the clerk of Livingston county."

Canaseraga creek runs through a fertile valley from Dansville to Mount Morris, a distance of fifteen miles, and by reason of conditions which have been growing for years, the bed of the stream in many places is higher than the land on either side. Consequently, in times of floods and freshets, the banks are easily overflowed and the water running toward the hills stands in all the low places, becomes stagnant, and is a menace to the public health and safety of that community, and a great damage to the productiveness of the valley. The plans to improve this stream provide:

First. For straightening the creek channel in many places, thus shortening by some four miles the distance that the water will have to flow, and

Second. For dredging, deepening and widening the channel at other places, so as to enable it to carry away the flood waters and,

Third. For constructing ditches in the low places next to the hills on either side of this stream to carry off the water that now accumulates and becomes foul and stagnant.

Upon taking up the work of improving Canaseraga creek, the Commission with its engineer, in company with persons whose property would be affected, made a careful and detailed inspection of the location where the work was to be done. It found that in order to do the work properly and accomplish the results desired, it was necessary to make new maps, plans and specifications. This work was placed in the hands of Mr. Walter McCulloh, a civil engineer of large experience. After a careful survey it was found necessary to change the plans filed in the county clerk's office of Livingston county and approved by chapter 419 of the Laws of 1906. New plans have been made from this last survey by which the Commission believe it will be able to regulate the flow of this stream so as to preserve the public health and safety, and improve the property of riparian owners.

RAQUETTE RIVER.

In the matter of the application for the improvement of Raquette river, the Commission, with its consulting engineer, has made a personal inspection of the territory affected, and has found that the flow of the river can be improved. The engineer in charge of the surveys of this particular locality is engaged in making test pits, to determine the proper location for a dam, and making other surveys required for a detailed estimate of the cost of this work.

HUDSON RIVER.

The Commission, with its consulting engineer, inspected the upper Hudson river to study the questions submitted to it by the petitions of the cities of Albany, Troy, Rensselaer and other places. It made an extended inspection of this country in view of the statement in the application that the flood waters of the Hudson are a menace to the health and safety of large numbers of people who reside along its banks. It was found that the utilization of many of the available sites for storage of flood waters would involve the

flooding of State lands. This the Commission believes is prohibited by the Constitution of the State, and, therefore the work of surveying and locating dams which would in any way involve the flooding of State lands will not be undertaken.

There are, however, many places upon the Battenkill and Hoosic rivers and other streams, where storage reservoirs could be built, which would result in decreasing the danger of high waters below the mouth of those streams. It is also evident that the reservoirs thus constructed would greatly improve the available water power upon these streams and below their confluence with the Hudson.

On account of the question which has arisen in regard to the issuing of certificates to carry on the work relating to improvements asked for by the numerous petitioners, the Commission has not insisted upon hearings in many cases, desiring first to ask that the law be amended.

That portion of the law relating to the regulation of the flow of water courses and rivers for the purpose of protecting the public health and safety contemplates the defrayment of the expense of such improvements by the property benefited.

To that end, the law provides that the Commission, as soon as the total costs and improvements can be determined, shall make a complete and verified statement thereof, and apportion the same in decimals between the several counties, towns, cities, villages and individuals, according to the benefits received therefrom, and shall determine whether the same shall be paid in one year or in annual payments not exceeding twenty.

It is to be noticed that the apportionment is not to be made until the total cost of the improvement can be determined, but section 12 of the act provides for issuing certificates to provide temporarily for the expenditures which must be made before the proceeds of the sale of bonds which the law also provides for become available. These certificates are to be countersigned by the Comptroller of the State. The proceeds of the sale of such certificates are to be deposited to the credit of the Commission and paid only on a warrant countersigned by the Comptroller.

This section is not quite clear as to when the certificates can be issued although the law appears to make the certificates a lien upon the property benefited. The work contemplated by the act is of such a nature that it will require in most cases many thousands of dollars to complete, but the amount required cannot be de-

terminated until the work is finished. It is, therefore, of the greatest importance to know how and when the money to pay for such work can be made available. The question arises whether the bonds and certificates can be issued from time to time as the work progresses to the amount of its total cost.

If neither bonds nor certificates can be issued until an assessment is made, which can only be done when the work is completed, this will seriously interfere with the work of the Commission. It is impracticable to let a contract for work of the character contemplated by this act without providing for payments as the work progresses. The work can only be paid for from the avails of certificates and bonds countersigned and sold by the Comptroller of the State; therefore, keeping in mind that the law charges the costs of such improvements upon the property and communities benefited, and makes the certificates and bonds to be issued a *lien* upon the lands so improved, the authority to issue and sell bonds and certificates before the work is completed and as it progresses should be clear, in order that there be no question as to the legality of such bonds and certificates, and no delay in making the payments according to the terms and conditions of the contracts.

The Commission, therefore, recommends that the law be amended so as to leave no doubt as to its meaning.

DAMS.

With the growing interest in the storage of water, the question of dams becomes a matter of public concern, and it should be noted that their construction in this State is now without restraint, safeguard or supervision by the public authorities. The growth of communities is sometimes so rapid that its future wants cannot readily be foreseen. It is hardly wise, therefore, for the State to permit the diversion of potable waters for power purposes, if this diversion will imperil in the future the supply of water for domestic purposes in growing communities. State supervision over the construction of dams and reservoirs would seem to be the logical result of the supervision the State now exercises over the water supplies of municipalities and other civil divisions, for while the State Water Supply Commission might refuse to grant an application for the construction of a water plant on a stream, it would not have authority to prevent any water power company with the necessary riparian rights

from proceeding with the construction both of reservoirs and dams. Under the amended statutes of last winter, the State Water Supply Commission's supervision was extended over all private water companies in the State. Suppose that one of these should desire to increase its reservoir capacity or to build additional reservoirs and that, for just and proper reasons, this request should be denied, what could prevent it as a private corporation, organized perhaps under another corporate name, from engaging in the business of furnishing water power, securing the necessary riparian rights, and completing its contemplated reservoirs and dams for power purposes, without the consent of the State?

Authority to supervise the construction of new dams and to require the repair of old ones which may have become unsafe and unsanitary should be lodged in some public body and it should be charged with the duty of making an annual inspection of all dams, the failure of which would endanger persons and property.

CONSTRUCTION OF RESERVOIRS.

The intent and purpose of chapter 734 of the Laws of 1904, as expressed therein, is to protect the public health and safety by regulating the flow of rivers and water courses, but it is obvious that under the statute it is especially sought to improve the water powers along streams whose waters it is desired to store and regulate at the expense of the property benefited. The direct damage caused by floods in this State in a single year according to the statistics reported by the State Water Storage Commission has aggregated more than \$3,000,000, besides the loss of life, physical and mental suffering, impairment of health due to resulting unsanitary conditions, and the damage arising from interruption of public and private business, none of which could be assessed, computed or compensated.

Consideration of the problem of so regulating the flow of rivers as to reduce this menace makes clear the fact that in the minds of many it can best be done by storing up the flood waters, thereby making it possible to prevent the annual or occasional overflow, which brings about the conditions dangerous to health and property. It is admitted that such overflows have been endured for years without appearing a matter of serious import to the State, but that fact does not indicate that it deserves no consideration.

The storage of flood waters can only be accomplished by building storage dams at favorable reservoir sites and at a large outlay of money. The reservoirs once built, however, if properly located might so control the flood waters of the rivers of this State as not only to minimize the danger to public health and safety, but to make them a constant source of advantage to riparian owners and to the State.

The law now provides that under certain conditions storage reservoirs may be built and the cost thereof assessed upon the city, town, village and individuals benefited.

The study made by this Commission of the water storage question since assuming the powers and duties of the River Improvement Commission, has led it to put a high estimate on the commercial value of the rivers and streams of this State. The Commission is convinced that it is practicable to build storage reservoirs, as already indicated, on streams and at places that will not conflict with the provisions of the Constitution for the protection of the State Forest Preserves, which will regulate the flow of such streams and thus carry out the law for protecting the public health and safety. This will enable the State to sell the waters so stored to persons desiring their use and make them a permanent and most important source of additional revenue. It seems to the Commission that if the law were so amended that the State could control the flow of rivers and streams requiring such control, and could regulate the price at which such waters could be sold for power purposes, a valuable and permanent source of income would be secured.

Rivers are natural sources of material wealth, since their waters furnish power that can be easily and accurately measured, and because they are constantly replenished by natural laws. Their flow is not uniform, however, and on this account many streams are unsatisfactory for power purposes, and are growing more so as the forests are cleared and fields improved. While nature has been generous, therefore, in providing our State with many and important rivers, she has also imposed a duty upon us if we would avail ourselves of these natural advantages. The problem to be solved is how to make the flow of these streams even and reliable. A proper solution will not only protect the public health and safety, but will make these streams productive of power of enormous value to the State.

The surer and better the water power the greater the manufacturing industries and the more thriving the communities depending upon them. In this country, New England was first to seize upon this evident source of advantage and develop its water power. It has to a greater extent than any other portion of our country utilized its water sources for power purposes.

It has been estimated by the State Water Storage Commission that water power in this State could be made to produce an annual profit of \$18,000,000, which equals, if it does not exceed, the net profits of agriculture in this State.

The importance, therefore, of giving this subject early and careful consideration must be apparent.

Respectfully submitted,

HENRY H. PERSONS,

President.

CHARLES DAVIS,

JOHN A. SLEICHER,

ERNST J. LEDERLE,

MILo M. ACKER,

State Water Supply Commission.

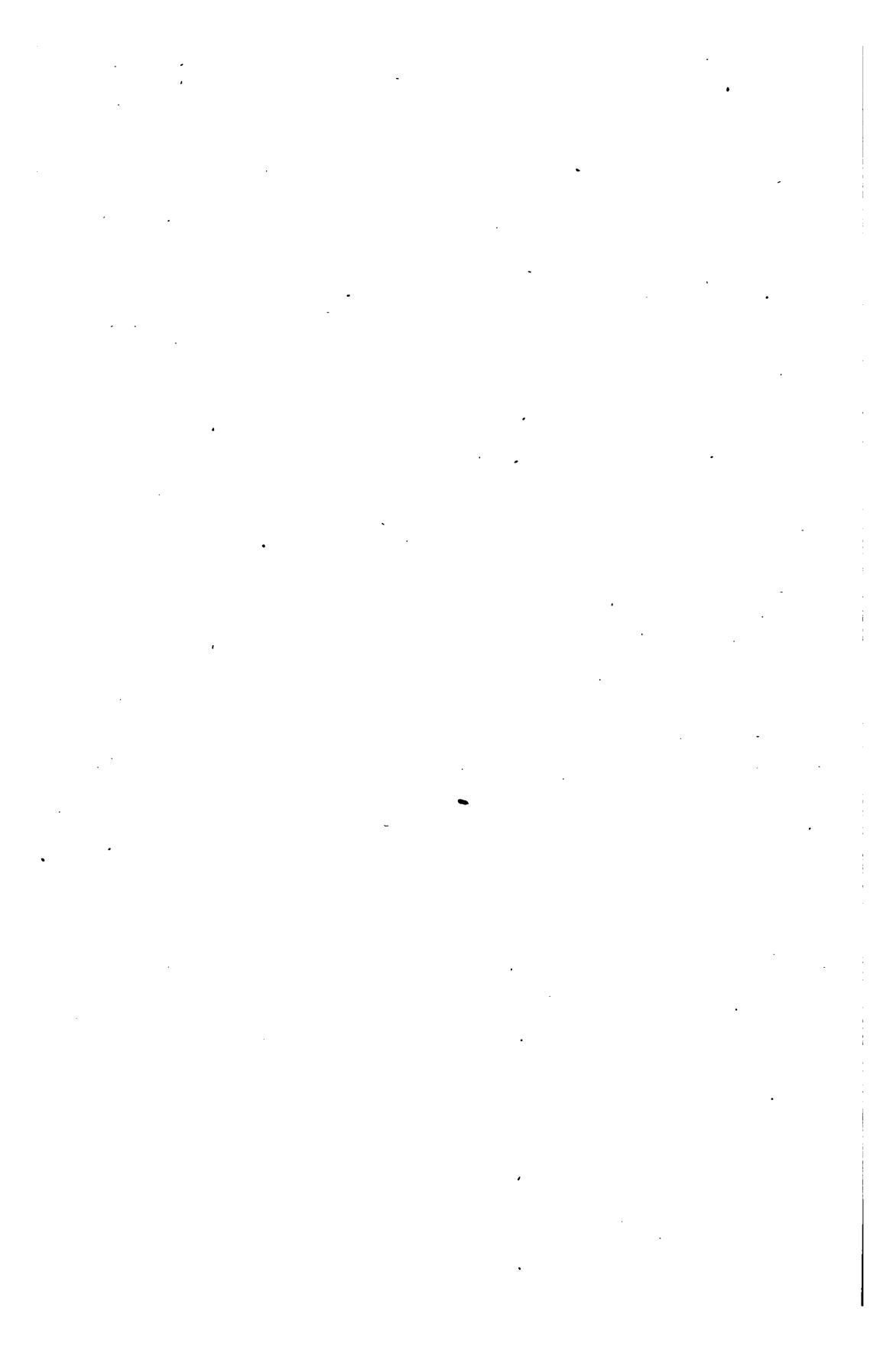


APPENDIX.

SECOND ANNUAL REPORT

OF THE

STATE WATER SUPPLY COMMISSION.



APPENDIX I.

REPORT OF MYRON S. FALK
CONSULTING ENGINEER OF THE COMMISSION.

January 29, 1907.

To Hon. HENRY H. PERSONS, *President State Water Supply Commission.*

Sir.—As explained in the last annual (1906) report, the State Water Supply Commission requested in the autumn of 1905, by means of circular blanks, from the forty-five cities and 438 incorporated villages of the State, information in regard to the sources of their present water supply, the qualities of the water, the costs and further details. Up to the present time, replies have been received from every one of the cities and from 426 of the incorporated villages. The Commission, therefore, lacks reports from twelve villages only, and it is definitely known that seven of these twelve villages possess municipal water supplies.†

STATISTICS OF THE STATE.

By means of the 471 reports which have been received, it will be seen that all of the forty-five cities of the State and 356 of the 438 incorporated villages are provided with public water supplies. The following table classifies by their population those

† In all the following statistics, the twelve villages which have failed to report have been excluded. This vitiates to some slight degree the accuracy of the deductions; the total population of these villages is 42,964. These villages with their population are the following (those with star indicate that they possess public water supplies): *Batavia, 10,080; Belleville, 346; *Glens Falls, 14,650; *Lawrence, 1,500; *Lestershire, 4,035; *Middleville, 597; *Ossining, 7,135; St. Regis Falls, 1,323; Sharon Springs, 526; *Tuckahoe, 1,580; Webster, 850; Woodhull, 342.

cities and villages, whether with or without water supplies, according to the State Census of June, 1905:

(1) POPULATION STATE CENSUS, 1905.	(2) Number of places of given population having a public water supply.	(3) Number of those places of column (2) under municipal ownership.	(4) Total population of places of column (2).	(5) Number of places of given popu- lation not having a public water supply.	(6) Total population of places of column (5).
Under 500	24	16	9,488	41	14,495
500-999	70	45	50,187	56	38,836
1000-1499	60	43	72,445	15	18,208
1500-1999	42	30	73,279	1	1,599
2000-2499	28	16	61,947	1	2,015
2500-2999	21	14	57,143	.....	.....
3000-3499	10	6	32,114	.....	.....
3500-3999	14	9	52,393	.....	.....
4000-4499	12	9	50,373	.....	.....
4500-4999	6	2	28,359	.....	.....
5000-10000	25	13	162,813	.....	.....
10000-50000	36	28	666,777	.....	.....
Above 50000	9	8	5,047,858	.....	.....
Totals	357	239	6,365,166	114	75,153

NOTE — Total population of State, 8,066,672.

In this table a municipality served by both a private and municipal corporation has been placed in the column of municipal ownership. The detailed information furnished by these villages will be found as an appendix either in last year's report or in this report.

There are now 114 villages not provided with water supplies, and of these villages there are only seventeen whose population is more than 1,000; the largest being Athens with a population of 2,015. The 114 villages unprovided with water contain a total population of 75,153, or an average of about 660 persons apiece.

The water supply statistics as collected and printed in the appendices of last year's and this year's report are exceedingly interesting; but the work thus far spent upon them will prove of no value unless the labor of collection and examination shall be maintained from year to year. Careful scrutiny should be kept of the manner in which supplies are increased and operated so that the new tendencies in water supply construction may be noted, and the experience of one village be employed to teach others; and this work could be done in no better way than by a central head or bureau established for the purpose of aid and advice. Your Commission cannot, under the law which created it, give this aid and advice; hence each municipality must work out its own plans, and the Commission approves if such plans are justified by public necessity, make proper provision for the payment of all damages, and interfere with no other municipality or corporation unless furnishing due protection; to aid a town in choosing one of two

alternative supplies, does not come within the scope of the Commission's duties.

WATER RATES AND CHARGES.

It was expected last year that it would be feasible to print the schedules of all the rates charged for water in the various municipalities of the State in this year's report, but I find on examination that the rates throughout the State are so nearly uniform that it would be a waste of time to reprint them. Those interested in learning the rates of any particular municipality will find these rates included in the abstracted reports in the appendix.

Summarizing the results in part, it will be found that the average annual charge by eighty-six cities and incorporated villages for a kitchen hydrant is \$5.40, and in forty-two cases the average for the second faucet is seventy-five cents; for seventy-seven municipalities the average annual charge for a bath tub is exactly \$3, and in the cases of seventy-six municipalities the annual charge for one water-closet is \$3.20 per year.

Fifty-one municipalities pay annually \$29 per hydrant for fire protection; in many cases the greatest part of the income of a private water company is derived from this charge for fire protection.

The meter charges throughout the State vary considerably, and it is the general practice to have a graduated rate proportioned with the amount of water furnished. The general rates vary from thirty cents to ten cents per thousand gallons, occasionally going as low as six cents and also occasionally touching thirty-five cents to fifty cents per thousand gallons; a charge of thirteen cents per thousand gallons is about the rate of \$1 per thousand cubic feet and this is the flat meter rate charged by New York city.

It is rather curious to note that the flat water rates throughout the State are so nearly uniform, independent of operating expenses; it seems to make no difference whether the system is gravity or a pumped supply. This may be due to the fact that in the cases of pumped supplies the initial cost for land and long pipe lines is to a great extent avoided and that the operating expenses balance the interest charges of the gravity supply. It may also be due to the fact that municipalities when making up their charges base their rates on similar charges in other places without giving much thought to expenses of operation and prefer to make up any deficiencies, if any should occur, by taxation.

The statistics accompanying the reports that have been received show the very interesting fact that the annual income of the water-

works of any municipality averages very closely \$2 per head of population; this average applies both to the largest as well as to the smallest municipalities. With that in view, it will be seen that the income that can be expected from a village of about 660 persons is about \$1,300 per year, and such income would hardly warrant, even under the most favorable circumstances, a capital expenditure of more than \$30,000 for a water plant.

In rough figures, therefore, since the average size of the 114 villages not now supplied with water is 660 persons, the approximate cost of new water-works to supply these villages would be $114 \times \$30,000$ or \$3,420,000. It is not likely that these supplies will be installed within less than ten years, so that the average expenditure for new water supplies (excluding additions to old plants or duplications of existing plants) for this State within the next ten years may be assumed not to exceed \$342,000 per year.

TABULAR SUMMARY.

A tabular summary of the 357 municipalities supplied with water has been prepared in Table II, and the columns of the table show whether municipal ownership exists, as well as the source of supply for any system; whether the system is a gravity or a pumping system; the number of hydrants and meters in use, and the total cost and annual income of the system. The largest city to be supplied by a private water company is Utica, with a population of 62,934; there are only eight municipalities between 10,000 and 50,000 supplied by private companies.

Inspection of the reports from which Table II was prepared shows that the great majority of villages obtain their water from springs and wells in their immediate vicinity; that the question of interference of one village supply with another rarely occurs; and that if two villages are adjacent, both obtain their water supply from the same plant. These reports confirm the conclusions which I reached in last year's report, stating that there was no present necessity for a State Water Supply System.

PURIFICATION PLANTS IN THE STATE.

The information blanks sent to the various municipalities requested also information as to whether such supplies were subject to any purification process. There were reported to the Commission the existence of 357 water supplies, and of these sixty-one claimed to possess some purification treatment. Twenty of these

supplies employ mechanical filters, four employ slow sand filters, eighteen employ "sand filters," eleven have coke or charcoal filters, and eight have "gravel beds." In these figures, New York city is excluded. From the nature of the reports received, it is impossible to state what degree of purification exists in any of these cases, but the fact that sixty-one of 357 water supplies at least make an attempt at purification is interesting.

WATER SUPPLY MAPS.

In addition to the blanks of inquiry which the Commission issued in September, 1905, there were issued in March of this year, to those municipalities mapped on the United States geological survey sheets of the State, copies of their respective maps; and the municipalities were requested to employ certain conventional symbols* on these maps to indicate the source and method of obtaining their water supply. It is as yet too early to make any report upon these maps, as but little more than 50 per cent. of the maps distributed have been returned.

When the entire State shall have been covered by the United States geological survey, there would be obtained a map of the

* The following request was attached to each map:
To the President of the Village of

In marking the map attached please use the following described conventional symbols to indicate the kind of water system you use:

If your water supply is obtained from surface streams, encircle the water shed by drawing a line along the dividing ridges. Show the location of dams.

If you have driven tubular wells, indicate their location by a group of circles $\circ\circ\circ$, writing opposite those symbols, the depths and sizes of the wells.

If you have one large well, indicate its location by one large circle ●, writing opposite that symbol, the depth and size of the well.

If you have a filter gallery, employ this symbol [] .

If you obtain your supply from springs, indicate their location by a triangle ▲, writing opposite that symbol the capacity of the springs in gallons per minute.

If you have a pumping station, indicate its location by the symbol $\overline{\square}$, stating the pumping capacity of the station.

Indicate the location of reservoirs and standpipes, and mark their capacity in gallons.

Mark the line of your main supply pipe line, conduit or aqueduct, and write upon it the size.

The Commission does not request you to make a finished drawing; the drawing that you will furnish, will be recopied by a draughtsman. The Commission asks only for a careful location of the above details, with the proper explanation.

MYRON S. FALK,
Consulting Engineer.

P. S. If you have any filtration or purification system, will you kindly explain the same.

State showing the location and the source of supply of every water system within the State. This method of mapping water supplies has been successfully carried out in the State of Massachusetts, under the direction of Mr. X. H. Goodnough, chief engineer of the Massachusetts State Board of Health, differing in the important particular, however, that in Massachusetts all information was gathered and the maps made by engineers employed by the State, whereas in the case of this Commission, on account of lack of funds, it was only possible to ask that this information be furnished voluntarily by the various municipalities.

STATE WATER SUPPLY SYSTEM.

In accordance with the following mandate of the law (section 6, chapter 723, Laws of 1905).

"The Commission shall immediately after its appointment proceed to make an investigation concerning the available sources of water supply in this State, the respective purity and quality of each source of supply and the availability of each to be used for localities other than those immediately adjacent thereto. Said Commission shall also investigate and report at said time the present water supply of each municipal corporation and other civil divisions of the State, to ascertain the present and future needs of each of said municipal corporations and other civil divisions of the State, and the supply thereof, and the purity of each of said supplies. Said Commission shall also report the present dispositions of sewerage of each municipal corporation and other civil divisions of the State, and if necessary, of adjoining States, with special reference to said disposition affecting the various municipal corporations and other civil divisions of the State in relation to the water supply of this State. Said Commission shall also report the advisability of, the time required for and the expenses incident to, the construction of a State system of water supply and for a State system for the disposition of sewerage, if necessary, for all or any of the municipal corporations and other civil divisions of this State, and make such recommendations connected with the subjects of said investigations herein provided for as said Commission shall determine."

I reported and believe showed conclusively in last year's report that a State system of water supply at this time was unnecessary and inadvisable, as the population of the State was located in such manner that in the great majority of cases all municipalities could obtain their water supplies without en-

croachment upon any other. I suggested, however, three sections of the State which could with advantage construct water and sewerage districts, similar to that at Boston; these sections were those surrounding the cities of New York, Buffalo and Albany. These systems would, however, hardly be State systems; they would be local under State supervision. The State should not operate them.

PURITY OF WATER SUPPLIES IN THE STATE.

The Commission, in endeavoring to determine the purity of the supplies of the State, requires that every applicant for a new water supply appearing before it shall furnish both chemical and bacteriological analyses of the proposed supply; the practice should naturally bring good results, but when it is considered that in the past eighteen months there have been only seventeen applications before the Commission, the results that will be obtained in that manner cannot be satisfactory.

As an illustration showing what little care has been spent on the purity of the water supplies of the State, and the limitation of the power of your Commission, the application of the city of Lockport is of interest. That city petitioned to be permitted to obtain its water from the Niagara river; analyses of the water taken at the site of the proposed intake showed that the quality of the proposed supply was not one that should, for sanitary reasons, be approved. Nevertheless, your Commission approved the application of the city as submitted, without requiring the installation of a purification plant, because the purity of the proposed supply was so much better than that now in use; but the Commission recommended and urged that a purification plant should be installed.

As the law now stands, however, the Commission has approved the plans of the city for a water that should not properly be used, and having approved the application, the Commission has no further jurisdiction in the matter. Lockport may or may not install a purification plant, but the Commission has no power whatever to enforce its recommendation.

CONTROL OF THE PURITY OF THE WATERS OF THE STATE.

There is one important duty in this State which the State Water Supply Commission could perform; and it is a function within the State that has never been properly provided for.

Far more benefit would result if in addition to the approval of the water supplies in the form now done, the control of the purity, the quality and the quantity of existing water supplies be given to the Commission. The anomalous proposition of a central body which simply approves a proposed supply, and then never hears of such proposed supply again (in fact not knowing even if constructed), would then disappear.

My plan for doing this would be that advocated in my report last year to the Commission, viz., that of certifying to the purities of the water supplies in the State, a plan which would be an adaptation of the system of certified milk inspection.

That is, the Commission would issue a certificate to any village, private water company or isolated water plant, such as a summer hotel, in which certificate there would be set forth that on a certain day an inspection of the water plant had been made, and analyses of the water had been made by experts of the State Water Supply Commission; that certain suggestions had been made on that day; that these suggestions had been faithfully carried out as an inspection on a subsequent date showed; and that on the date of certification the water was of a certain standard. Such certificate should have stamped plainly on its face that its meaning would be valueless after a certain time (this time depending upon the local conditions and the judgment of the inspecting engineer); the certificate should also show that it carried no guarantee as to the purity or fitness for use of the water; it should be merely evidence that care was being taken in that locality to protect the purity of the supply.

The certificate should not be compulsory upon any one; but should be voluntarily asked for, and a small recording fee only be charged.

I believe that after this plan shall have been tried by several municipalities, few would remain without the certificate of the State Commission.

An appropriation of \$10,000 a year for the purpose of an engineering staff, as asked for in last year's report, would be sufficient to inaugurate the work and to show its benefit.

INCREASE OF TYPHOID FEVER.

It is not gratifying to know that within the last few months the deaths from typhoid fever within the State have increased. During the month of August, 1906, for instance, the deaths from typhoid fever throughout the State were 158 in number, whereas

during the last five years the average has been 161; in September, 1906, there were 222 deaths from typhoid as against an average of 183 during the last five years; in October, 1906, there were 232 deaths as against 210 in the previous five years, and in November, 1906, there were 194 deaths as against an average of 161 in the previous five years. Many of these deaths can probably not be attributed to water supplies, but something is at fault if a disease like typhoid fever, which is more or less preventable, should be increasing.

It cannot be stated too frequently that constant vigilance and supervision are necessary to protect the citizens of a community from impure water; and it should be the duty of the State to furnish the means to care for the smaller communities, which, as a general rule, fail to see the necessity of adequate protection until an epidemic is prevalent.

APPLICATION FOR NEW SUPPLIES.

The Commission has, up to this date, received seventeen applications asking for approval of maps and plans; these applications include the cities of New York, Kingston, Lockport, Oneida, Watervliet, Gloversville and Plattsburg, the villages of Lyons Falls, Constableville, Millbrook, Brewster, White Plains, Malone, Bergen, Holland Patent and Carthage, and the Hannacroix Water Company.

The applications of Kingston and Millbrook have been withdrawn; that of Watervliet has been dismissed, and those of Brewster, Carthage, Plattsburg and the Hannacroix Water Company are still pending your decision.

I have furnished to you written reports on the proposed supplies of New York, White Plains, Lockport and Malone, and these will be found as an appendix to this report. The applications of New York, Lockport, Oneida, Lyons Falls, Constableville, White Plains, Bergen, Holland Patent, Malone and Gloversville have been granted by the Commission.

RIVER IMPROVEMENT WORK.

Canaseraga Creek Improvement.

Regarding the engineering work of the State Water Supply Commission in relation to river improvement, the work during the past year has been almost entirely an endeavor to put into actual construction one piece of work which the River Improve-

ment Commission had deemed of sufficient importance to place before the Legislature and the construction of which the Legislature had approved.

This work is the Canaseraga creek improvement, in the county of Livingston, and it contemplates straightening, deepening and improving the creek, and also the creeks or ditches known as the Kishaqua, the State ditch, the Bradner creek and Mud run. The purpose of this improvement is to reclaim from periodic freshets about 10,000 acres of exceptionally fertile farming land.

Upon the transferral of the duties of the former River Improvement Commission in June, 1906, this work was at once taken up, and plans and specifications were prepared asking for proposals from contractors. In the proposals, it was specified that the work was to be completed by March 1, 1907, at which time were expected the usual spring floods.

On July 27, 1906, the date specified for the tender of bids, the Commission decided to receive none as notice had been sent by the people of the Canaseraga valley that the plans as approved by the Legislature were not satisfactory; that it was their preference that the work be constructed in small sections instead of in one large section as proposed; and that considering the short time in which the work was asked to be performed, they believed that the prices bid would be high, and they preferred to extend the time of the completion of the work one year later than the time set.

In consequence, Mr. Walter McCulloh, the resident engineer of the Commission, has consulted with all the people to be benefited; the plans have been changed so that they will accomplish the desired results, and so that all the interests of the valley shall be satisfied; the work has been divided into nine sections, and these sections have been accurately staked out on the ground; the former surveys have been amplified and corrected, and the plans and specifications thoroughly and carefully revised. The time of the completion of the work has been extended to the flood season of 1908. Continuance of the work now depends upon the formal approval of the people of the valley and a final order from the Legislature.

Hudson River, Raquette River and Saranac River Improvements.

There are in addition to the Canaseraga application, nine other applications before the State Water Supply Commission, as the successor of the River Improvement Commission, asking for re-

lief under chapter 734 of the Laws of 1904. Three of these petitions apply, however, to one project, there being separate applications for two branches of the Hudson river, namely, the Battenkill and the Sacandaga, as well as one for the main river itself. These petitions ask for relief because of danger to health and life caused by the irregularity of the flow of the streams; and such unfavorable condition exists for certain localities. But this condition appears to be used as a means by the riparian owners and others situated along these streams when they ask for relief from your Commission.*

There is no doubt in my mind that these owners ask relief from the State Water Supply Commission for the sake of improving the water powers located on those streams.†

A petition for nearly the same purpose as that of the Hudson river is that of the Raquette river, the control and regulation of which is asked for by owners in Potsdam, Norwood and Watertown. It appears fully as evident to me that storage is asked for on this stream to satisfy the purposes of the owners of power, and the question of health is only incidentally involved.

In a somewhat similar way, there has been made the application for improving the Saranac river; this petition appeals for the benefit of the health and safety of the towns of Franklin, St. Armand and Black Brook; but it appears to me to be a method to enable the owners of a water power on that river to flood State lands for water storage purposes.

In connection with the improvement of the Raquette river, I have made two visits to this river, the first in company with a committee of the Commission to Little Tupper lake to examine the feasibility of a dam at the mouth of Round lake. This dam would create one storage reservoir of both these ponds, and so far as the surveys show, private property only would be flooded. The

* See page 10 of the application of the cities of Albany and Troy. See also the report made by the Association of Riparian Owners on the Battenkill, dated January 16, 1905, addressed to the River Improvement Commission. See also appendix to the report of this association: "Description of Water Powers on Battenkill River, U. S. Census, 1880."

† The following from the minutes of hearings before the River Improvement Commission, apply directly:

Minutes of January 24, 1905, in the matter of the Battenkill:

Page 3, Mr. Healey. "It is the unanimous wish of all the large business interests of the village and town that your Commission investigate the matter."

Page 4. "We lack water in dry times so that our mills have to close down."

Page 8. Mr. Hale states that the building of reservoirs would equalize the

resident engineer engaged in making the survey at this point is Mr. D. P. Murphy, and the survey and plans for this project will shortly be in such form that the Commission may consider the advisability of proceeding with this improvement. On my second visit, I examined the Raquette river from a point below Piercfield's to the point called Stark's Falls, in order to locate, if possible, additional available sites for dams, and my report in that matter was furnished under date of September 11, 1906.

It has been stated^t explicitly before your Commission that the River Improvement Commission (now the State Water Supply Commission) is formed just as it is because the State Constitution does not permit of the passage of the so-called Milling Acts of New Hampshire, Maine and Massachusetts, which give power to store water; that this work in New York State must be done in the name of the public health and safety and that incidentally, it must be of importance to the public health and safety.

Again, in a public hearing before the Commission,[§] it has been

flow of the stream "to the great benefit of manufacturers who have large interests along them; it would be a great benefit to them."

Page 11, Mr. C. C. Van Kirk. "It is particularly in the interests of these water powers and particularly to prevent these floods there."

MEETING OF MARCH 30, 1905 — BATTEKILL IMPROVEMENT.

Mr. Blandy. "So far as we are concerned up there, if we are benefited, we are willing to pay what our share is. I can speak for almost all the manufacturers up there."

Page 9, Mr. Blandy. "There are water powers at Mechanicville and Stillwater that would be benefited, and all these water powers are willing to contribute."

MEETING OF JULY 26, 1905, IN RE SARANAC RIVER.

Page 12, Mr. Van Ness. "That (the building of storage reservoirs) would be another advantage to these people, especially if the water be regulated and an equable flow kept up during the hot season so that they might run their machinery entirely by water the whole year round, instead of being obliged to lay up part of the time."

Page 18, Mr. Ostrander. "For that reason, and for the reason that while it has never been deemed necessary and proper for the benefited power owners to take a prominent part in these matters, excepting perhaps when it came time to pay, at which time we are always very warmly received and welcomed, our inaction has not been because of any desire to dodge any of the responsibility of the cost of these improvements, but because we prefer not to take an active part."

"So, that, broadly speaking, we expect to pay ultimately and the neglect of our State to develop our great natural resources is conceded, and in that respect we suffer very severely because of the methods which our sister States of Massachusetts and Rhode Island have adopted in regard to the improvement of their natural resources and the development of their water power, which means a great deal in this part of the State where transportation raises the cost so much that it makes it almost impossible to use steam power."

^t Meeting of June 28, 1905, *in re Hudson River Improvement*; page 2.

[§] Meeting of December 7, 1905, *in re Sacandaga River*; page 18.

stated definitely that if the riparian owners are not to be benefited in any way by the construction of storage reservoirs, the statute gives the Commission no right to assess any cost upon them; and arguing from that point, it is intimated that the dams would not be built because of lack of funds, since the riparian owners are the only ones willing to incur the necessary expense for the protection of the health of the citizens on the streams.

Throughout all the testimony taken before the Commission in the matter of the improvement of the Hudson river, there are intimations that all the costs of the improvement will be borne by the riparian owners benefited, if the improvement can only be made with the aid of the Commission. As a matter of fact, those preliminary costs of surveys and investigations that have been made have been borne by these riparian owners, without expense to the State.

It is my belief that every one of the improvements asked for by these power owners, will result in benefit to the prosperity of the State, as well as in improving conditions of health and safety, but I believe that the improvements desired should be made in the name for which their sponsors really desire them, and not under a name calculated to deceive any one.

Binghamton, Woodbury Creek, Paper Mill Brook and Silver Creek Improvements.

The other applications that have been presented to the Commission relate more nearly to the question of the public health and safety than the preceding.

In the case of the improvement at Binghamton on the Chenango river, there appears no other question except the benefit to be obtained for the public health and safety.

The application for the improvement of Woodbury creek in Orange county has been denied for the reason that the improvements are local in character and do not need State supervision.

In the two remaining petitions, those of Paper Mill brook at New Berlin, Chenango county, and of Silver creek, proceedings are still pending. The Commission has not yet determined in these cases whether correction shall be done under its own supervision, or of that of the local authorities.

Respectfully submitted,

MYRON S. FALK,
Consulting Engineer.

SECOND ANNUAL REPORT OF THE

TABLE II.

STATE WATER SUPPLY COMMISSION.

37

1. 372 No.	No.	28 Gravity	No.	16,000
1. 388 Yes.	Yes.	Spring	No.	50,000
1. 734 Yes.	Yes.	Spring	No.	4,500
1. 277 Yes.	No.	Grav. & pumping	No.	1,800
1. 417 Yes.	No.	Aesian wells	No.	1,800
261 No.	Yes.	Pumping	No.	2,500
1. 056 Yes.	No.	Spring	2 Gravel beds	33,500
3. 627 Yes.	No.	Spring	No.	300,000
994 Yes.	No.	Wells	No.	300,000
Brookfield	No.	Pumping	No.	300,000
Brownsville	No.		No.	300,000
*Buffalo	No.		No.	300,000
Burdett	Yes.	Lake	1,600	No.
Caledonia	Yes.	Spring	117 Pumping	7,275,000
Cambridge	No.	Spring	None.	724,000
Camden	Yes.	Spring	54 Gravity	1,600
Camillus	No.	Spring	None.	1,600
Canandaigua	Yes.	Lake	161 Pumping	163,600
Canaehaie	Yes.	Spring	66 Pumping	20,900
Canastota	Yes.	Spring	28	14,100
Candor	Yes.	Spring	78 Gravity	670
Canisteo	Yes.	Spring	34 Gravity	3,000
Canton	Yes.	Spring	54 Gravity	520
Cape Vincent	Yes.	River	76 Pumping	2,100
Castile	Yes.	River	76 Pumping	5,900
Castleton	Yes.	Spring	56 Pumping	3,300
Cato	No.	Spring	39 Gravity	45,000
Catskill	Yes.	River	31 Gravity	1,200
Cattaraugus	Yes.	River	116 Pumping	3,000
Oayuga	Yes.	Spring	35 Gravity	3,000
Cazenovia	No.	Pumping	27 No.	11,000
Celeron	Yes.	Spring	None.	30,000
Central Square	No.	Pumping	No.	2,500
Champlain	Yes.	River	47 Grav. & pumping	49,600
Charlotte	Yes.	River	None.	3,000
Chateaugay	Yes.	River	None.	3,000
Chatham	No.	Spring	No.	25,000
Chaumont	No.	Spring	No.	28,000
Cherry Valley	Yes.	River	No.	2,400
Cherry Creek	No.	River	No.	3,000
Carthage	Yes.	River	No.	2,500
Chester	Yes.	River	No.	2,500
Chittenango	Yes.	River	No.	163,000
Churchville	No.	Spring	No.	22,000
Clayton	Yes.	River	No.	2,000
Clayville	No.	Spring	No.	64,600
Cleveland	Yes.	River	No.	5,600
Clifton Springs	Yes.	River	No.	3,300

*Indicates a city.
† Cost of system not given.
‡ Supply from Sandy Creek filtered.

TABLE II—(Continued).

STATE WATER SUPPLY COMMISSION.

39

	No.	Springs.	19 Gravity	None...	No.	No.	23,000
	Yes...	Brook	18 Gravity	None...	No.	No.	4,000
	Yes...	Springs.	450 Pump & gravity.	600 Mechanical filter.	No.	No.	2,000
Elizabethtown	519	Yes...	18 Gravity	None...	No.	No.	16,000
Ellienville	2,372	Yes...	2,398 Yes.	Yes...	Yes...	No.	117,000
Elliotville	1,044	Yes...	1,643 Yes.	Yes...	Yes...	No.	1,800
Ellisburg	310	No.	1,234 Yes.	No.	21 Pumping	No.	1,800
*Elmira	34	687	Yes...	516	River	450 Pump & gravity.	1,800
Elmira Heights	1,869	Yes...	1,380 Yes.	Yes...	River	600 Mechanical filter.	1,800
Esperance	231	No.	346 No.	Yes...	450 Pump & gravity.	600 Mechanical filter.	1,800
Fairus		680 No.	680 No.	Yes...	Pumping	No.	1,800
Fairhaven		2,598 Yes.	2,643 Yes.	Yes...	21 Pumping	No.	1,800
Fairport		1,131 Yes.	1,131 Yes.	No.	21 Pumping	No.	1,800
Falconer		1,234 Yes.	1,234 Yes.	Yes...	21 Pumping	No.	1,800
Farmingdale		516 No.	516 No.	Yes...	21 Pumping	No.	1,800
Farmham		1,380 Yes.	1,380 Yes.	Yes...	21 Pumping	No.	1,800
Fayetteville		578 No.	578 No.	Yes...	21 Pumping	No.	1,800
Fishkill		3,939 Yes.	3,939 Yes.	Yes...	21 Pumping	No.	1,800
Fishkill Landing		1,131 Yes.	1,131 Yes.	Yes...	21 Pumping	No.	1,800
Fonda		689 Yes.	689 Yes.	Yes...	21 Pumping	No.	1,800
Forestport		680 Yes.	680 Yes.	Yes...	21 Pumping	No.	1,800
Forestville		438 No.	438 No.	Yes...	21 Pumping	No.	1,800
Fort Ann		854 No.	854 No.	Yes...	21 Pumping	No.	1,800
Fort Covington		3,806 Yes.	3,806 Yes.	Yes...	21 Pumping	No.	1,800
Fort Edward		2,598 Yes.	2,598 Yes.	Yes...	21 Pumping	No.	1,800
Fort Plain		2,370 Yes.	2,370 Yes.	Yes...	21 Pumping	No.	1,800
Frankfort		493 Yes.	493 Yes.	Yes...	21 Pumping	No.	1,800
Franklinville		1,485 Yes.	1,485 Yes.	Yes...	21 Pumping	No.	1,800
Fredonia		5148 Yes.	5148 Yes.	Yes...	21 Pumping	No.	1,800
Freerport		4,012 Yes.	4,012 Yes.	Yes...	21 Pumping	No.	1,800
Freerville		493 No.	493 No.	Yes...	21 Pumping	No.	1,800
*Friendship		1,259 Yes.	1,259 Yes.	Yes...	21 Pumping	No.	1,800
Fulton		8,847 Yes.	8,847 Yes.	Yes...	21 Pumping	No.	1,800
Gainesville		912 Yes.	912 Yes.	Yes...	21 Pumping	No.	1,800
Galway		309 No.	309 No.	Yes...	21 Pumping	No.	1,800
Genesee		149 No.	12,249 Yes.	Yes...	21 Pumping	No.	1,800
*Geneva		2,245 Yes.	1,469 Yes.	Yes...	21 Pumping	No.	1,800
Gilbertsville		18,672 Yes.	18,672 Yes.	Yes...	21 Pumping	No.	1,800
*Gloversville		582 No.	582 No.	Yes...	21 Pumping	No.	1,800
Glen Park		3,099 Yes.	4,229 Yes.	Yes...	21 Pumping	No.	1,800
Goshen		2,063 Yes.	2,063 Yes.	Yes...	21 Pumping	No.	1,800
Gouverneur		3,356 No.	3,356 No.	Yes...	21 Pumping	No.	1,800
Gowanda		3,864 Yes.	3,864 Yes.	Yes...	21 Pumping	No.	1,800
Gowandaview-on-Hudson		1,358 Yes.	1,358 Yes.	Yes...	21 Pumping	No.	1,800
Greene		4,878 Yes.	4,878 Yes.	Yes...	21 Pumping	No.	1,800
Green Island		2,667 Yes.	2,667 Yes.	Yes...	21 Pumping	No.	1,800
Greenport		1,996 Yes.	1,996 Yes.	Yes...	21 Pumping	No.	1,800
Greenwich		No.	No.	Yes...	21 Pumping	No.	1,800

* Indicates a city.

† Elmira Heights supplied from Elmira.

‡ Supplied by village of Jamestown.

§ Supplied by village of Matteawan.

TABLE II—(Continued).

CITY OR TOWN.	POPULATION.	PUBLIC SUPPLY.	OPERATED BY MUNICIPALITY.	SOURCE OF WATER SUPPLY.	NUMBER OF FIRE HYDRANTS	GRAVITY OR PUMPING SYSTEM	NUMBER OF METERS IN USE.	FILTRATION.	COST OF SYSTEM.	ANNUAL INCOME.
Iroton	1,188	Yes	Yes	Spring	48	Gravity	No	\$33,000	\$2,070	
Jesupman	815	No	No	Wells	76	Pumping	54,000			
Jewell	1,967	Yes	No	Lake	76	Pumping	66,000			
Hammond	1,622	Yes	Yes	Spring	Grav. & pump	Gravel filter	27,000			
Hannondsport	385	No	Yes	Spring	33	Gravity	50,000			
Hannibal	1,141	Yes	Yes	Spring	23	Gravity	15,500			
Hancock	1,381	Yes	No	Spring	125	Pumping	No	150,000	725	
Harrisville	1,180	Yes	No	Stream	108	Pumping	No	67,000	21,000	
Dawding-on-Hudson	3,080	Yes	No	Wells	97	Pumping	72 No	84,000	12,500	
Haverstraw	6,182	Yes	Yes	Wells	9	Pumping	2 No	8,500	130	
Hempstead	4,145	Yes	No	Spring	27	Gravity	2 No	28,000	2,500	
Henderson	344	No	Yes	Wells	97	Pumping	No			
Herkimer	6,596	Yes	Yes	Spring	9	Pumping				
Hermon	517	Yes	Yes	Stream	27	Gravity				
Hilburn	878	No	No	Brook	Gravity	Charcoal filter	16,000			
Hilton	503	Yes	No	Wells	55	Pumping	54 No	32,500	1,700	
Hornat	320	No	No	Wells	55	Pumping	14 No			
Holland Patent	1,506	Yes	Yes	Wells	93	Pumping	No	300,000	18,300	
Holley	2,536	Yes	Yes	Wells	93	Pumping	No	45,000	30,000	
Honeoye Falls	1,208	No	No	Streams	14	Mechanical filters	40 No	600,000	2,370	
Hornell	5,251	Yes	No	Wells	197	Pumping	116 No	199,000	14,800	
Horseheads	13,259	Yes	Yes	River	197	Pumping	No	63,000	1,300	
Hudson	1,810	Yes	Yes	Wells	133	Gravity	15 Sand filter			
Hunter	10,290	Yes	Yes	River	197	Pumping	No			
Huron	524	Yes	No	Wells	197	Pumping	12 No			
Kent	5,924	Yes	Yes	Wells	197	Pumping	83 Mechanical filter			
Interlaken	717	No	No	Well	42	Pumping	300 No	154,000	6,000	
Irrington	2,480	Yes	Yes	Spring	222	Pumping	600 No	64,000	43,000	
Ithaca	14,615	Yes	Yes	Wells	310	Pumping	500 No	205,000	77,000	
Jamestown	1,259	Yes	Yes	Spring	171	Gravity	161 No	205,000	77,000	
Johnstown	1,810	Yes	Yes	Spring	35	Spring	No	63,000	1,300	
Jordan	9845	Yes	Yes	River	50	Pumping	No	37,000	1,800	
Keesville	524	Yes	Yes	Lake	298	Pumping	12 No			
Kenmore	1,995	Yes	Yes	Streams	396	Gravity	83 Mechanical filter			
Kingston	506	Yes	No	Streams	16	Pumping	20,000	20,000	54,000	
Kinderhook	25,556	Yes	Yes	Streams	No	Gravity	No	945,000	54,000	
Lacons	866	No	Yes	Streams	No	Gravity	No			
Lake George	644	Yes	No	Streams	No	Gravity	No			

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Lake Placid.....	1. 514 Yes.....	Lake.....	27 Pumping.....	No.....	113,000.....
Lakewood.....	552 No.....	Lake.....	59 Gravity.....	36 Sand filter.....	3,000.....
Lancaster.....	3. 853 Yes.....	No.....	17 Gravity.....	None.....	18,000.....
Larchmont.....	1. 760 Yes.....	Streams.....	17 Pumping.....	55,000.....	2,000.....
La Salle.....	1. 023 Yes.....	River.....	12 Gravity.....	8,500.....	65.....
Laurens.....	236 Yes.....	Springs.....	95 Pumping.....	82,000.....	4,000.....
Leroy.....	3. 395 Yes.....	Wells.....			
Lewiston.....	716 No.....				
Liberty.....	2. 124 Yes.....				
Lima.....	972 Yes.....	Yes.....	41 Pumping.....	7 No.....	30,000.....
Lisle.....	378 Yes.....	Yes.....	Pumping.....	20 Aeration.....	5,000.....
Limestone.....	321 No.....	No.....	Gravity.....		1,200.....
* Little Falls.....	11. 122 Yes.....	Greens.....	177 Gravity.....	44,700.....	27,000.....
Little Valley.....	1. 225 Yes.....	Spring.....	20 Gravity.....	19,000.....	2,200.....
Liverpool.....	1. 144 No.....				
Livonia.....	782 Yes.....	Yes.....	50 Pumping.....	22,500.....	700.....
* Lockport.....	17. 552 Yes.....	Lake.....	469 Pumping.....	15 No.....	
Lovellville.....	2. 519 Yes.....	Canal.....	88 Gravity.....	44 No.....	
Lyndonville.....	512 No.....	Springs.....	58 Pumping.....	106,000.....	7,000.....
Lyons.....	4. 758 Yes.....	No.....	5 Gravity.....	12 Sand filter.....	
Lyons Falls.....	709 Yes.....	Weil.....		7 No.....	
Macedon.....	677 No.....	Spring.....			
Madison.....	313 Yes.....	Yes.....	98 Gravity.....	11,000.....	1,200.....
Malone.....	6. 478 Yes.....	Springs.....	3 No.....		
Mamaroneck.....	5,090 Yes.....	No.....	Mechanical filter.....		
Manchester.....	784 No.....	Lake.....			
Manlius.....	1. 236 Yes.....	Yes.....	98 No.....	250,000.....	19,000.....
Mannsville.....	350 No.....	Springs.....			
Marathon.....	1. 042 Yes.....	Yes.....	55 Gravity.....		
Marcellus.....	671 No.....	Springs.....			
Margarettville.....	583 Yes.....	No.....	32 Gravity.....	No.....	
Massena.....	2. 547 Yes.....	No.....	37 Pumping.....	6 No.....	13,000.....
Mattonawan.....	5. 384 Yes.....	Yes.....	38 Gravity.....	430 No.....	40,000.....
Mayfield.....	603 No.....				40,000.....
Mayville.....	1. 021 Yes.....	Yes.....	Pumping.....		10,000.....
McGrawville.....	879 No.....	Wells.....			
Mechanicville.....	5. 877 Yes.....	Yes.....	81 Springs.....	790 No.....	21,000.....
Media.....	5. 114 Yes.....	Yes.....	Wells.....	No.....	150,000.....
Meridian.....	314 No.....		110 Pumping.....		10,000.....
Mexico.....	1. 289 No.....				100,000.....
Middleburg.....	1. 209 Yes.....	No.....			11,200.....
Middletown.....	1. 358 No.....	Brook.....	38 Gravity.....	20,500.....	
Milford.....	14. 516 Yes.....	Streams.....	273 Gravity.....	678,000.....	38,000.....
Millbrook.....	526 Yes.....	Yes.....	31 Brook.....	15,400.....	800.....
Milton.....	1. 121 No.....	Yes.....	Spring.....	26,000.....	2,500.....
Mohawk.....	2. 044 Yes.....	Yes.....	Springs.....	40,000.....	4,400.....

* Indicates a city.

SECOND ANNUAL REPORT OF THE

TABLE II—(Continued).

CITY OR TOWN.	Population.	Public supply.	Operated by municipality.	Source of supply.	Number of fire hydrants.	Gravity or pumping system.	Number of meters in use.	Filtration.	Cost of system.	Annual income.
Monroe.	1,008	Yes.	Yes.	Lake.	34	Gravity Pumping	64	No.	\$40,000	\$2,000
Monticello.	1,388	Yes.	Yes.	Lake.	34	Gravity Pumping	2	No.	31,000	5,000
Montgomery.	961	Yes.	Yes.	Well.	34	Gravity Pumping	No.	No.	27,000	1,050
Montour Falls.	1,238	Yes.	Yes.	Well.	34	Gravity	No.	No.	35,000	1,900
Mooers.	537	No.	No.	Spring.	32	Gravity	No.	No.	35,000	—
Moravia.	1,889	Yes.	Yes.	Brook.	28	Gravity Pumping	No.	No.	35,000	3,400
Morris.	561	Yes.	Yes.	Spring.	28	Gravity	No.	Gravel filter	14,500	700
Morrisstown.	429	No.	No.	Spring.	28	Gravity	29	No.	15,000	—
Morrisville.	565	Yes.	Yes.	Spring.	50	Gravity	20	No.	33,000	800
Mt. Kisco.	1,830	Yes.	Yes.	Spring.	50	Gravity	No.	No.	33,000	3,000
Mt. Morris.	2,611	Yes.	No.	Rivers.	—	Pumping	Slow sand & mechanical filter.	—	—	—
Mt. Vernon.	25,006	Yes.	No.	Spring.	27	Gravity	No.	No.	12,800	—
Nassau.	455	Yes.	Yes.	Spring.	—	—	No.	No.	24,500	425
Naples.	1,988	Yes.	Yes.	Wells.	—	—	6	No.	—	—
Neilston.	709	No.	No.	Spring.	53	Pumping	No.	No.	57,000	9,000
*Nelsonville.	671	Yes.	Yes.	Brook.	36	Gravity	No.	No.	27,100	—
Newark.	4,554	Yes.	Yes.	Spring.	36	Gravity	No.	No.	36,000	2,650
Newark Valley.	909	Yes.	Yes.	Lake.	374	Gravity	130	No.	2,454,000	49,800
New Berlin.	1,128	Yes.	Yes.	—	—	—	—	—	—	—
*Newburgh.	26,498	Yes.	Yes.	—	—	—	—	—	—	—
Newfield.	1,043	No.	No.	—	—	—	—	—	—	—
New Hartford.	347	No.	No.	—	—	—	—	—	—	—
New Paltz.	970	Yes.	Yes.	Spring.	20	Gravity	120	No.	47,000	3,600
Newport.	672	Yes.	Yes.	Brooks.	6	Gravity	No.	No.	10,000	870
*New Rochelle.	20,480	Yes.	No.	Streams & brooks.	553	Gravity & pump	3,586	No.	1,900,000	185,000
*New York City.	4,013	Yes.	Yes.	River.	645,000	Gravity & pump	63,000	Small portion fil'd	125,000,000	7,000,000
*Niagara Falls.	26,560	Yes.	Yes.	—	312	Pumping	537	No.	350,000	31,000
Nichols.	452	No.	Yes.	—	—	—	—	—	—	—
North Olean.	1,761	Yes.	Yes.	—	—	—	—	—	—	—
North Pelham.	850	Yes.	No.	Lake.	41	Pumping	8	No.	72,000	7,200
Northport.	1,803	Yes.	No.	River.	—	Pumping	3	No.	—	—
North Tarrytown.	4,750	Yes.	Yes.	Brooks.	350	Gravity	None.	Mechanical filter.	425,000	17,600
*North Tonawanda.	10,157	Yes.	Yes.	Brooks.	352	Gravity	None.	No.	35,000	1,860
Northville.	1,013	Yes.	Yes.	Brooks.	—	—	None.	13 Mechanical filter.	350,000	20,000
Norwich.	7,115	Yes.	No.	Brook.	45	Gravity	None.	No.	37,500	3,000
Norwood.	1,779	Yes.	Yes.	River.	28	Gravity	4	No.	25,000	2,700
Nunda.	1,000	Yes.	No.	Springs.	110	Pumping & grav.	80	Sand filter.	260,000	6,300
Nyack.	4,441	Yes.	Yes.	River.	—	—	—	—	—	—

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Dickinson buys supply from Binghamton City Water Works.

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TABLE II—(Continued).

City or Town.	Population.	Public supply.	Operated by municipality.	Source of supply.	Number of fire hydrants.	Gravity or pumping system.	Number of meters in use.	Filtration.	Cost of system.	Annual income.
Prospect.....	330	Yes.....	No.....	Spring.....	46	Pumping.....	None.....	No.....	\$30,000	
Pulaski.....	1,575	Yes.....	Yes.....	Spring.....	46	Gravity.....	None.....	No.....		
Randolph.....	1,163	Yes.....	Yes.....	Well.....	45	Pumping.....	71	No.....		
Red Creek.....	459	Yes.....	Yes.....	Well.....	45	Pumping.....	25	Continental Jewel	\$560	
Red Hook.....	1,572	Yes.....	Yes.....	River.....	152	Pumping.....	55,000	No.....		
Reimens.....	399	No.....	No.....	Wells.....	49	Pumping.....	55,000	No.....		
Rensselaer.....	10,715	Yes.....	No.....	Springs.....	49	Gravity.....	55,000	No.....		
Rhinebeck.....	1,547	Yes.....	No.....	Springs, & lake	185	Pumping & grav.	50,000	No.....		
Richburg.....	375	Yes.....	Yes.....	Springs.....	49	Pumping.....	28,000	No.....		
Richfield Springs.....	1,684	Yes.....	Yes.....	Lake Springs.....	185	Gravity.....	50,000	No.....		
Richmondville.....	587	Yes.....	Yes.....	Lake Springs.....	185	Pumping.....	28,000	No.....		
Richville.....	354	No.....	No.....	Lake.....	185	Pumping.....	13,731	No.....		
Rifton.....	581	No.....	Yes.....	Lake.....	185	Pumping.....	13,731	No.....		
Rochester.....	181,666	Yes.....	Yes.....	Wells.....	257	Pumping.....	40,000	No.....	7,900,000	
Rockville Center.....	2,648	Yes.....	Yes.....	River.....	257	Pumping.....	40,000	No.....	46,000	
Rome.....	16,562	Yes.....	Yes.....	Springs.....	257	Pumping.....	40,000	No.....	32,900	
Rosendale.....	1,399	Yes.....	Yes.....	Lake.....	257	Gravity.....	45,500	No.....	1,100	
Rouses Point.....	1,674	Yes.....	Yes.....	66 Pumping	257	Pumping.....	40,500	No.....	4,400	
Rushville.....	500	No.....	No.....	66 Pumping	54	No.....	54	No.....		
Rye.....	4,076	Yes.....	No.....	Wells.....	40	Pumping.....	1	No.....		
Sackets Harbor.....	908	No.....	Yes.....	Springs.....	40	Gravity.....	None.....	No.....		
St. Johns.....	3,048	No.....	Yes.....	Brook.....	40	Grav. & pumping	7	No.....		
Sag Harbor.....	2,127	Yes.....	Yes.....	Brook.....	19	Gravity.....	None.....	No.....		
Salamanca.....	5,455	Yes.....	No.....	Brook.....	120	Pumping.....	2,500	No.....		
Salem.....	1,313	No.....	No.....	Lake.....	69	Pumping.....	2,500	No.....		
Sandy Creek.....	734	Yes.....	Yes.....	Creek.....	69	Gravity.....	2,500	No.....		
Sandy Hill.....	5,321	Yes.....	No.....	Springs.....	15	Gravity.....	114,000	No.....		
Saranac Lake.....	3,834	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Saratoga Springs.....	12,969	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Saugerties.....	3,833	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Savannah.....	544	No.....	No.....	River.....	15	Gravity.....	114,000	No.....		
Savona.....	1,191	No.....	No.....	River.....	15	Gravity.....	114,000	No.....		
Schagticoke.....	5,601	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Schenectady.....	58	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Schoharie.....	1,529	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Schoharie.....	1,021	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Scotia.....	2,166	Yes.....	Yes.....	River.....	15	Gravity.....	114,000	No.....		
Sea Cliff.....	1,750	Yes.....	No.....	River.....	15	Gravity.....	114,000	No.....		

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Geneva Falls	6,733	Yes..	Lake.....	85	Pumping.....	10	No.....	275,000	14,500
Sherburne	927	Yes..	Spring.....	25	Gravity.....	None..	No.....	55,500	2,800
Sherman	797	Yes..	No.....	6	Pumping.....	None..	No.....	3,100	.....
Shoalsville	927	No..	Spring.....	.....	.....	Sand filter.....	102,000	.....	.....
Sidney	2,532	Yes..	No.....	28	Gravity.....	.....	.....	75,000	9,000
Silver Creek	2,073	Yes..	Stream.....	39	Grav. & pump.....	20 No.....	.....	27,000	.....
Silver Springs	817	Yes..	Wells.....	.....	.....	None..	.....	7,000	600
Sincharrille	507	Yes..	Spring.....	39	Gravity.....	.....	.....	45,000	3,100
Skaneateles	1,384	Yes..	Lake.....	60	Pumping.....	14 No.....	.....	.....	.....
Sloan	1,246	Yes..	No.....	12	Grav. & pump.....	75	.....	8,500	520
Smyrna	271	Yes..	Lake.....	111	Pumping.....	2	.....	100,000	8,000
Solvay	4,196	Yes..	Yes.....	111	Pumping.....	384 No.....	.....	88,000	13,500
Southampton	2,213	Yes..	Spring.....	96	Pumping.....	None..	.....	2,200	.....
South Glens Falls	2,097	Yes..	Wells.....	55	Pumping.....	.....	.....	.....	.....
*South Nyack	1,818	Yes..	Spring.....	.....	.....	.....	.....	.....	.....
Spencertown	918	No..	.....	.....	.....	.....	.....	.....	.....
Spring Valley	753	No..	No.....	28	Pumping.....	5 No.....	.....	.....	.....
Springville	2,583	Yes..	Wells.....	50	Pumping.....	1 No.....	.....	34,000	3,020
Stamford	2,230	Yes..	Wells.....	30	Gravity.....	1 Mechanical filter.....	.....	60,000	2,500
Stillwater	923	No..	Spring.....	.....	.....	.....	.....	20,500	4,200
Suffern	2,655	Yes..	Yes.....	68	Pumping.....	50 Charcoal filter.....	.....	50,000	3,150
*Syracuse	117,903	Yes..	No.....	30	Gravity.....	None..	.....	4,500,000	285,000
Tannersville	589	Yes..	No.....	180	Pumping.....	721 Mechanical filter.....	.....	38,500	2,700
Tarrytown	5,370	Yes..	Brook.....	35	Pumping.....	1 Coke filter.....	.....	527,000	19,000
Theresa	892	Yes..	River.....	.....	.....	.....	.....	20,500	6,600
Ticonderoga	1,749	Yes..	.....	.....	.....	.....	.....	.....	.....
Tivoli	1,041	No..	.....	.....	.....	.....	.....	.....	.....
*Tonawanda	7,904	Yes..	Yes.....	268	Pumping.....	8 No.....	.....	245,000	15,000
Trenton	31	No..	Yes.....	.....	.....	.....	.....	.....	.....
*Troy	76,910	Yes..	Lakes & river.....	Grav. & pump.....	.....	.....	.....	2,500,000	.....
Trumansburg	1,202	Yes..	Well.....	Pumping.....	.....	.....	.....	.....	.....
Tully	600	Yes..	Spring.....	50	Grav. & pump.....	2 No.....	.....	10,000	.....
Tupper Lake	2,769	Yes..	Yes.....	26	Gravity.....	.....	.....	60,000	.....
Turin	389	Yes..	Spring.....	45	Gravity.....	.....	.....	14,000	.....
Unadilla	1,142	Yes..	Spring.....	Pumping.....	.....	.....	.....	100,000	.....
Union Springs	1,654	Yes..	.....	.....	.....	.....	.....	.....	.....
Unionville	890	No..	.....	.....	.....	.....	.....	.....	.....
Upper Nyack	331	Yes..	No.....	111 Grav. & pump.....	.....	.....	.....	155,000	.....
*Utica	62,934	Yes..	Yes.....	950 Gravity.....	9,000 No.....	.....	.....	1,200	.....
Valatie	1,231	Yes..	No.....	50 Pumping.....	.....	.....	.....	.....	.....
Valley Falls	888	No..	.....	.....	.....	.....	.....	.....	.....
Van Etten	420	No..	.....	.....	.....	.....	.....	.....	.....
Vernon	430	No..	Yes.....	16 Grav. & pump.....	.....	.....	.....	14,400	.....
Victor	806	Yes..	Yes.....	.....	.....	.....	.....	.....	.....
Victory Mills	735	No..	.....	.....	.....	.....	.....	.....	.....

* This description applies to municipal plant; Skaneateles has also a private water company. † South Nyack supplied

* Indicates a city by Nyack.

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TABLE II—(Continued).

CITY OR TOWN.	Population.	Public supply.	Operated by municipality.	Source of supply.	Number of fire hydrants.	Gravity or pumping system.	Number of meters in use.	Filtration.	Cost of system.	Annual income.
Voorheesville.....	479	Yes.	Yes.	Springs.....	27	Gravity.....			\$21,000	\$650
Waddington.....	708	No.	Yes.		32	Pumping.....				
† Wappingers Falls.....	3,588	Yes.	Yes.		59	Pumping.....	576	No.	61,000	5,300
Walden.....	3,737	Yes.	Yes.		78	Gravity.....		Sand filter.....		6,000
Walton.....	2,911	Yes.	No.			Gravity.....		None.		
Waterv... *Watertown.....	3,166	Yes.	No.	Springs.....		Gravity & pump.....		None.		
Waterv... *Watervillet.....	1,767	Yes.	No.			Gravity & pump.....		None.		
Watertownville.....	664	Yes.	Yes.	River.....	74	Pumping.....		None.		
Waterville.....	3,134	Yes.	No.		57	Pumping.....	439	No.	194,000	1,200
Waterv... *Watervillet.....	4,123	Yes.	No.	River.....	395	Pumping.....		2 No.	144,000	13,000
Waterv... *Watervillet.....	25,447	Yes.	Yes.	River.....	56	Gravity.....		Sand filter.....		6,000
Waterville.....	4,355	Yes.	Yes.	River.....	122	Pumping & grav.		10 No.	60,000	3,550
Waterv... *Watervillet.....	14,600	Yes.	No.	River.....	122	Pumping & grav.	180	Sand filter.....	500,000	33,000
Watkins.....	2,967	Yes.	No.	Lake.....		Pumping.....		No.		
Wayland.....	4,915	Yes.	No.	Springs.....		Gravity.....		No.		
Weedsport.....	1,220	Yes.	Yes.	Well.....		Pumping.....	10 No.		28,000	
Wellsburg.....	1,495	Yes.	No.	Springs.....	20	Gravity.....		2 No.	78,000	3,400
Welsville.....	4,481	Yes.	Yes.	Wells.....		Pumping.....		No.		
West Carthage.....	1,377	Yes.	Yes.	River.....		Gravity.....	115	No.	104,000	12,500
Westfield.....	2,923	Yes.	Yes.	Creek.....		Pumping.....		Sand filter.....	15,500	1,500
West Haverstraw.....	2,348	Yes.	No.	Stream.....		Pumping.....		No.	100,000	9,000
West Salamanca.....	558	No.		Wells.....	16	Gravity & pump.....				
West Winfield.....	749	Yes.	No.	Creek.....	65	Pumping.....	260	No.	84,000	800
Whitehall.....	4,148	Yes.	Yes.	Wells.....	254	Pumping.....	1,528	No.		10,000
Whitesboro.....	11,579	Yes.	Yes.	Springs.....	20	Gravity.....		Charcoal filter.....		1,300
Whitney's Point.....	2,018	Yes.	No.		40	Pumping.....		None.	26,000	2,000
Williamsville.....	749	Yes.	Yes.			Gravity.....		1 No.		800
Wilson.....	967	Yes.	Yes.			Pumping.....				
Windsor.....	691	Yes.	Yes.		38	Gravity & pump.....	3 No.		22,000	1,400
Wolcott.....	1,294	No.								
Wurtsboro.....	508	Yes.	Yes.	Streams.....	11	Gravity.....			7,500	110
*Yonkers.....	61,716	Yes.	Yes.	Streams.....	967	Pumping.....	5,891	Slow sand filters.....	2,000,000	150,000
Yonville.....	524	Yes.	No.	Greens.....		Gravity.....				
Youngstown.....	570	No.								

* Indicates a city. † Wappingers Falls system for fire and sprinkling purposes only.

APPENDIX.

The reports of the following cities and incorporated villages were printed in the 1906 report of the State Water Supply Commission.

CITIES.

Albany.	Johnstown.	Oneida Castle.
Amsterdam.	Kingston.	Oswego.
Auburn.	Little Falls.	Plattsburg.
Binghamton.	Lockport.	Poughkeepsie.
Buffalo.	Middletown.	Rensselaer.
Cohoes.	Newburgh.	Rochester.
Cortland.	New Rochelle.	Rome.
Dunkirk.	New York city.	Schenectady.
Elmira.	Niagara Falls.	Syracuse.
Fulton.	North Tonawanda.	Troy.
Gloversville.	Ogdensburg.	Utica.
Hornell.	Olean.	Watertown.
Hudson.	Oneida.	Watervliet.
Jamestown.		

INCORPORATED VILLAGES

Addison.	Canisteo.	Dexter.
Afton.	Canton.	Dresden.
Akron.	Cape Vincent.	Dryden.
Albion.	Castile.	Earlville.
Alfred.	Castleton.	East Aurora.
Amityville.	Catskill.	East Randolph.
Andes.	Cayuga.	East Syracuse.
Andover.	Celeron.	Eastwood.
Ardsley.	Central Square.	Edwards.
Argyle.	Chateaugay.	Elba.
Athens.	Chatham.	Elbridge.
Attica.	Chaumont.	Elizabethtown.
Avoca.	Cherry Valley.	Ellenville.
Avon.	Chester.	Ellicottville.
Babylon.	Chittenango.	Ellisburg.
Baldwinsville.	Churchville.	Fabiis.
Ballston Spa.	Clayville.	Fairport.
Bath.	Cleveland.	Falconer.
Bergen.	Clifton Springs.	Farnham.
Black River.	Clinton.	Fishkill.
Blasdell.	Clyde.	Fishkill Landing.
Bolivar.	Cold Spring.	Fonda.
Briarcliff Manor.*	Cooperstown.	Forestville.
Brocton.	Copenhagen.	Fort Ann.
Brockport.	Corfu.	Fort Edward.
Bronxville.	Corinth.	Fort Plain.
Burdett.	Cornwall.	Frankfort.
Caledonia.	Coxsackie.	Franklin.
Cambridge.	Croton-on-Hudson.	Franklinville.
Camden.	Dansville.	Freeport.
Camillus.	Delhi.	Freeville.
Canajoharie.	Deposit.	Fultonville.
Canastota.	De Ruyter.	Gainsville.
Candor.	Dobbs Ferry.	Geneseo.

* Printed under list of unincorporated villages.

SECOND ANNUAL REPORT OF THE

INCORPORATED VILLAGES — *Continued.*

Gilbertsville.	Millbrook.	Sandy Creek.
Gowanda.	Mohawk.	Sandy Hill.
Granville.	Montgomery.	Saranac Lake.
Greene.	Mooers.	Saratoga Springs.
Green Island.	Moravia.	Saugerties.
Greenport.	Morrisville.	Savona.
Groton.	Naples.	Schaghticoke.
Hagaman.	Nelliston.	Schenevus.
Hamburg.	Newark.	Schuylerville.*
Hammond.	Newark Valley.	Sherburne.
Hastings-on-Hudson.	Newfield.	Sherman.
Haverstraw.	New Hartford.	Shortsville.
Hempstead.	New Paltz.	Sidney.
Henderson.	Northport.	Silver Springs.
Herkimer.	North Tarrytown.	Skaneateles.
Hilburn.	Northville.	Sloan.
Hilton.	Norwich.	Smyrna.
Hobart.	Nunda.	Solvay.
Holland Patent.	Nyack.	Southampton.
Holley.	Oneonta.	South Glens Falls.
Homer.	Oriskany Falls.	Spencer.
Honeoye.	Ovid.	Spencerport.
Hoosick Falls.	Owego.	Spring Valley.
Horseheads.	Oxford.	Tannersville.
Hunter.	Painted Post.	Tivoli.
Ilion.	Palmyra.	Trenton.
Irvington.	Panama.	Trumansburg.
Jordan.	Parish.	Tupper Lake.
Kinderhook.	Patchogue.	Turin.
Lacona.	Pawling.	Union.
Lakewood.	Pelham.	Union Springs.
Lancaster.	Penn Yan.	Unionville.
La Salle.	Philadelphia.	Upper Nyack.
Laurens.	Pine Hill.	Valley Falls.
Leroy.	Piermont.	Victory Mills.
Limestone.	Pleasant Valley.	Waddington.
Lisle.	Pleasantville.	Wappingers Falls.
Little Valley.	Poland.	Warsaw.
Lowville.	Port Chester.	Warwick.
Lyndonville.	Port Henry.	Waterford.
Lyons.	Port Jervis.	Waterville.
Lyons Falls.	Portville.	Watkins.
Macedon.	Prattsburg.	Waverly.
Madison.	Prospect.	Wayland.
Malone.	Bandolph.	Weedsport.
Manchester.	Red Hook.	Wellsburg.
Mannsville.	Rhinebeck.	Wellsville.
Marcellus.	Richburg.	West Carthage.
Margaretville.*	Richfield Springs.	Westfield.
Massena.	Richmondville.	West Salamanca.
Matteawan.	Richville.	West Winfield.
Mayville.	Rifton.	Whitehall.
Meridian.	Rockville Center.	Whitesboro.
Mexico.	Rouses Point.	Whitney's Point.
Middleburg.	Sag Harbor.	Wilson.
Middleport.	St. Johnsburg.	Wolcott.
Milford.	Salamanca.	Youngstown.

* Printed under list of unincorporated villages.

CITIES.

The reports of the following cities and incorporated villages will be found in this year's (1907) annual report of the State Water Supply Commission.

Aurora.	Galway.	North Olean.
Adams.	Geneva.	North Pelham.
Alden.	Glen Park.	North Tarrytown.
Alexandria Bay.	Gloversville.	Norwood.
Alexander.	Goshen.	Oakfield.
Altamont.	Gouverneur.	Odessa.
Altmar.	Grand View-on-Hudson.	Oramel.
Angelica.	Greene.	Otego.
Angola.	Greenwich.	Oxford.
Antwerp.	Hamilton.	Palatine Bridge.
Arcade.	Hammondsport.	Peekskill.
Bainbridge.	Hancock.	Pelham.
Belmont.	Hannibal.	Pelham Manor.
Bloomingdale.	Harrisville.	Perry.
Boonville.	Hermon.	Phelps.
Brewster.	Honeoye Falls.	Philmont.
Bridgewater.	Hudson.	Phoenix.
Brookfield.	Interlaken.	Pike.
Brownville.	Ithaca.	Pittsford.
Canandaigua.	Keeseeville.	Port Byron.
Canaseraga.	Kenmore.	Port Dickinson.
Carthage.	Lake George.	Port Leyden.
Cato.	Lake Placid.	Potsdam.
Cattaraugus.	Larchmont.	Pulaski.
Cazenovia.	Lewiston.	Red Creek.
Champlain.	Liberty.	Remsen.
Charlotte.	Lima.	Rosendale.
Cherry Creek.	Liverpool.	Rushville.
Clayton.	Livonia.	Rye.
Clifton Springs.	Mamaroneck.	Sacketts Harbor.
Cobleskill.	Manlius.	Salem.
Cohocton.	Marathon.	Savannah.
Cold Brook.	Mayfield.	Schoharie.
Cold Spring.	McGrawville.	Scotia.
Constableville.	Mechanicville.	Sea Cliff.
Corning.	Medina.	Silver Creek.
Cuba.	Millerton.	Sinclairville.
Dannemora.	Monroe.	South Nyack.
Depew.	Monticello.	Spring Valley.
Dolgeville.	Montour Falls.	Springville.
Dundee.	Morris.	Stamford.
Dryden.	Morristown.	Stillwater.
Earlville.	Mt. Kisco.	Suffern.
Elmira Heights.	Mt. Morris.	Tarrytown.
East Rockaway.	Mt. Vernon.	Theresa.
Esperance.	Nassau.	Ticonderoga.
Fairhaven.	Nelsonville.	Tonawanda.
Fayetteville.	New Berlin.	Tully.
Forestport.	New Hartford.	Unadilla.
Fort Covington.	New Paltz.	Valatie.
Fredonia.	Newport.	Van Etten.
Friendship.	Niagara Falls.	Vernon.
Fultonville.	Nichols.	Victor.

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Voorheesville.	West Haverstraw.	Windsor.
Walden.	White Plains.	Wurtsboro.
Walton.	Whitesboro.	Yonkers.
Washingtonville.	Williamsville.	Yorkville.
Waterloo.		

The reports of the following towns and unincorporated villages were printed in the 1906 annual report of the State Water Supply Commission. These towns all possessed public water supplies.

Amenia.	Florida.	Parishville.
Arkville.	Font Grove.	Pine Plains.
Bangor.	Gilboa.	Port Jefferson.
Berlin.	Glen Cove.	Prattsburgh.
Big Indian.	Grand Gorge.	Quogue.
Bloomville.	Greenville.	Ravena.
Brainardsville.	Griffen Corners.	Rensselaerville.
Briarcliff Manor.	Hartwick.	Ripley.
Burke.	Hicksville.	Riverhead.
Cairo.	Highland.	Roxbury.
Central Bridge.	Highlands.	Schroon Lake.
Central Valley.	Holland.	Slingerlands.
Chaffee.	Huntington.	Street Road.
Collins Center.	Jefferson.	Sylvan Beach.
Cooks Falls.	Katonah.	Treadwell.
Davenport.	Keene Valley.	Tuxedo.
Delanson.	McConnellsburg.	Warrensburg
Delevan.	Mt. Upton.	Wassaic.
East Albany.	Merrick.	Westport.
East Hampton.	New Salem.	Whitesville.
East Worcester.	New Scotland.	Worcester.
Endicott.	North Creek.	Wyoming.
Fishers Island.	Oyster Bay.	

The reports of the following towns and unincorporated villages, will be found in this (1907) annual report of the Commission. These towns all possess public water supplies.

Arena.	Edmeston.	Marlborough.
Bridgehampton.	Forest Lawn.	Orwell.
Crown Point.	Hamden.	Richford.
Deansboro.	Hensonville.	Roscoe.
Downsville.	Jeffersonville.	Round Lake.
Dover Plains.	Lily Dale.	South New Berlin.
Dundee.	Long Eddy.	Thousand Island Park.
East Creek.	Luzerne.	Windham.

REPORT OF THE CONSULTING ENGINEER ON APPLICATION OF THE CITY OF NEW YORK.

NEW YORK CITY, *February 19, 1906.*

Hon. HENRY H. PERSONS, *President State Water Supply Commission, Albany, N. Y.:*

Sir.— In compliance with your request, the following report of the engineering features relating to the proposed additional water supply for the city of New York is herewith submitted:

Present Conditions.

The following table shows the population of New York city according to the State Census of 1905, and the estimated population¹ in 1925:

Borough.	1905.	1925.
Manhattan	2,112,380	2,130,000
Bronx	271,630	675,000
Brooklyn	1,358,686	2,705,000
Queens	198,240	680,000
Richmond	72,840	130,000
Total	<u>4,013,781</u>	<u>6,320,000</u>

It is estimated that the present consumption of water for the city of New York is about 550,000,000 gallons per day, the supply being derived mainly from two sources; one source the water sheds of the Croton, Bronx and Byram rivers; the other sources the sheds of Long and Staten Islands.

The consumption of Croton River water is at the present time about 300,000,000 gallons per day, and the Board of Water Supply of the city of New York petitions for approval of plans so that it may augment this Croton supply with water from the Catskill mountains. No Croton River water is at present furnished to the boroughs of Brooklyn, Queens or Richmond; the Board of Water Supply plans to provide for the future necessities of these boroughs by furnishing them with a portion of the Catskill Mountain supply.

The Board of Water Supply calls particular attention to the situation in the boroughs of Brooklyn, Richmond and Queens as

¹ From Burr-Hering-Freeman Commission's Report; page 67.

being the most pressing, and states that it has passed a resolution to the effect that "steps should be taken to secure from the Long Island water shed, in anticipation of the supply from the north, sufficient water to make good the serious deficiency now existing," but the Board has failed in any particular to present in its plans any suggestion looking toward the immediate relief of any of these boroughs, except as relief might come after¹ the construction of the Catskill plan.

MANHATTAN AND THE BRONX.

The yield of the Croton water shed has averaged for one year as low as 208,000,000 gallons per day (1880), and it has averaged for one year as high as 630,000,000 gallons per day (1901); during the entire period of 37 years from 1868 to 1904, the shed has averaged a yield of 406,000,000 gallons per day.

A diagram filed by the Board of Water Supply² shows that with a uniform daily draft of 345,000,000 gallons, which may be expected in 1907, and taking a period corresponding to that from 1879 to 1904, there would have been sixteen years in which, with the present storage in the Croton shed, *water would have flowed to waste* over the lowest dam, during the same period, assuming the storage to be that afforded after the construction of the Croton falls and Cross river dams, "all¹ periods of water famine would have been tided over, except an extremely dry period."

Another diagram¹ filed by the Board of Water Supply shows that, if there be assumed for the years 1905 to 1912 a period of ordinary rainfall conditions corresponding to that which occurred in the years 1890 to 1897, the city would have been amply provided for, even with a uniformly increasing annual consumption, from 300,000,000 gallons per day in 1905 to 405,000,000 gallons per day in 1912.

Even for a period of *very dry years* corresponding to that from 1879 to 1887, the same report shows that the city might with proper precautions be satisfactorily supplied until 1912.

Your engineer lays stress upon these figures, because they were

¹ Testimony of J. Waldo Smith before the Commission, page 514.

"Five years were contemplated which will bring it (water) down to the Croton Valley." Completing the work, and delivering to the City of Brooklyn, "will extend over ten years."

² Report of J. Waldo Smith, Chief Engineer, to the Aqueduct Commissioners, January 30, 1905.

prepared for the Croton Aqueduct Commission on January 30, 1905, to serve it as an argument so that it might proceed with the construction of additional dams in the Croton valley; and if the data are true, they show that perhaps the danger of water famine in the city of New York is not so serious as certain persons now interested and favoring new construction work, might wish the public to believe.

There appear to be no accurate records in the boroughs of Manhattan and the Bronx showing the quantities of water consumed by the various sections of those boroughs, and there are apparently no meters on the delivery mains supplying those boroughs, and no means of measuring the water delivered except by measuring the aqueduct itself; until accurate measurements are taken to determine these deliveries of water, no exact knowledge of the amount of water wasted or consumed in those boroughs can be had.

Mr. John R. Freeman (page 943, testimony before Commission) reaffirmed the statement made by him in March 23, 1900, estimating "the total needless waste by leakage to be at least one-half of the total amount supplied," qualifying "needless" to mean when compared "with ideal conditions."

The Burr-Hering-Freeman Commission in December 1903, stated unqualifiedly that the "loss from leaky and defective plumbing probably exceeds 15 per cent. of the total supply or upward of 40,000,000 gallons per day;" and there appears to be no question that a general system of metering and better supervision of plumbing would aid the city to a great extent in relieving any stringent situation; but your engineer believes that notwithstanding any decrease in consumption that would result from the decrease of waste and considering even the not unfavorable data prepared by the Croton Aqueduct Commission the length of time¹ required to complete new works is such that the city must prepare at once for obtaining an additional supply of water.

BROOKLYN, QUEENS AND RICHMOND.

Your engineer believes that the boroughs of Brooklyn, Queens and Richmond require an additional supply of water, but he be-

¹ Municipal constructions are frequently delayed by events for which engineers are not responsible. Taxpayers' suits, brought for various reasons, such as failure to award to lowest bidder, etc., may postpone actual construction for long periods even after complete preparation of plans.

lieves that the plans filed by the Board of Water Supply will fail to furnish the desired relief. Since the supply of water for these boroughs is obtained mainly from underground sources, an actual stoppage of the supply is practically impossible; the situation in times of drought will be less serious¹ for these boroughs than for Manhattan and the Bronx.

The Burr-Hering-Freeman Commission in its report stated that 40,000,000 gallons more water could be daily developed in Nassau county, where no legal restrictions exist; but the Board of Water Supply has filed no recommendations for an increase from that direction, but has placed full reliance upon additions to the supply of these boroughs from the Catskill mountains; and these give no promise of relief in less than ten years.

It is unfortunate that the water supply of the city of New York should be partially controlled by three departments, namely, the Croton Aqueduct Commission, the Board of Water Supply, and the Department of Water Supply, Gas and Electricity; it may be that a department other than the Board of Water Supply is making attempts to relieve the Brooklyn situation, but the Board of Water Supply is only planning for relief some years hence.

PROPOSED NEW SOURCES.

The Board of Water Supply petitions that it may acquire as sources for a new water supply, the water sheds of the Esopus, Rondout, Catskill and Schoharie creeks. The water sheds and yield of these creeks as estimated by the chief engineer of the city board are:

Esopus, 255 square miles, 250,000,000 gallons daily; Rondout, 176 square miles, 125,000,000 gallons daily; Schoharie, 228 square miles, 136,000,000 gallons daily; Catskill, 245 square miles, 149,000,000 gallons daily.

The available yield of all these Catskill sources (exclusive of interstate Delaware tributaries), is 660,000,000 gallons daily.

The Board of Water Supply does not state that it intends to

¹ Testimony of F. P. Stearns before the Commission, page 759, "I think it (the danger of famine) is more likely to occur (in Brooklyn), but not likely perhaps to occur with the same severity."

Testimony of J. R. Freeman, page 870. "The condition (during a period of drought) in Manhattan would be much more serious than in Brooklyn."

make use of all of these sources for it makes provision only for an aqueduct of a capacity of about 500,000,000 gallons per day.¹

The Board of Water Supply estimates this supply to cost \$161,-857,000, but it furnishes merely lump figures, and no detailed estimates of cost of the conduit from Brooklyn to Richmond, or of the Rondout development, of the Schoharie development, and of the filtration plant at Scarsdale, or a total of \$55,645,000. *The cost of the Catskill creek development has been entirely omitted.* So that if all four water sheds are finally developed, the final cost will exceed \$161,857,000.

The question of cost need not necessarily concern the State Commission, which knows that the city of New York is fully able to pay all cost of construction, no matter what it be.

These proposed sources are *not the nearest undeveloped sources, nor are they the cheapest, which can be developed.*

TEN-MILE RIVER.

The Ten-Mile river, which lies almost entirely within this State, but finally flows into Connecticut has not been considered by the Chief Engineer of the Board of Water Supply because "of the uncertainty of the law governing the diversion of interstate waters." This river has been estimated² to yield 150,000,000 gallons per day, and strong recommendations were made in 1900 to the authorities of the city of New York to take steps to procure immediately that water, but although this water is "more quickly available"³ and "necessarily at less expense," no effort has yet been made to obtain it.

The Corporation Counsel of the city of New York has stated⁴ that it would be best to wait until "disputes between Kansas and Colorado" and other western States have been settled in the courts; although it was shown at the hearings⁵ before your Com-

¹ Testimony of F. P. Stearns, page 763. "It is not proposed by the present plan to take from them (the streams in the Catskills) more than 500,000,000 gallons per day or provide a capacity for taking it."

Again, page 769. "The aqueduct shown by this plan will take only about 500,000,000 gallons, perhaps a little more, and the reservoir in a dry year will furnish 660,000,000 gallons, and in average years, it will furnish a great deal more."

² Report of John R. Freeman, 1900.

³ Testimony of J. Waldo Smith before Commission, page 652.

⁴ Testimony of G. L. Sterling before Commission, page 544.

⁵ Testimony of F. P. Stearns, page 751.

mission that interstate water is now taken by the State of Massachusetts from the State of New Hampshire.

If the city of New York had made an attempt to acquire the Ten-Mile river in 1901, immediately after its recommendation, by Mr. John R. Freeman, C. E., the legal questions as to its use by this State might have been settled at this time; as matters now stand, however, the possibilities of obtaining that water appear to be in the same indefinite condition to-day as then.

Dutchess County.

In Dutchess county, there are also certain streams, whose waters would more quickly prove available, and would cost less than the streams in the Catskill mountains. These streams have been estimated by the Burr-Hering-Freeman Commission (page 18 of Report) to yield 260,000,000 gallons per day.

The residents of the county of Dutchess appealed to the Legislature of the State in 1904, and secured the passage of an act precluding the city of New York from acquiring any territory within that county, and that act exists as a statute to-day.

In the opinion of your Engineer, that statute has no reason for existence, particularly as your Commission has been constituted for protecting the rights of all civil divisions of the State; there is sufficient water in the county of Dutchess to supply the needs of all its inhabitants as well as to supply a portion of the needs of New York city.

The city of New York has taken no steps looking toward the relief of oppression in this matter. The authorities of the city, for some reason, appear contented to let the matter rest; but the Board of Water Supply, it would appear, should, for the best interests of the city, agitate the subject, and show that a saving would accrue to the city if the water sheds of Dutchess county could be procured. No damage would be sustained by the inhabitants of that county that could not be fully compensated as it is now proposed to do in the Catskills.

Delaware River.

Your Commission has been furnished with no data as to the possible use by the city of New York of the Delaware river. This river is in the same condition as the Ten-Mile river, and would probably also be "ruled out by the uncertainty of the law govern-

ing the diversion of interstate waters," but before the final settlement of the interstate question, some steps should be taken by the engineers of the city to show whether the Delaware river is at least not more available than either Schoharie or Catskill creeks.

In a report made by Mr. C. C. Vermeule, 1894, for the State of New Jersey, it is shown that the Delaware river leaves New York State at Port Jervis; at that point it has a drainage area of 3,600 square miles, two-thirds of which is in New York, its elevation at that point is 411 feet above the sea, and its distance in a straight line from the Brooklyn bridge, New York city, about sixty miles. Connection with the city could be had only by means of a long tunnel, but no estimates of cost have been prepared, and no engineering investigations have been made.

Suffolk County.

There still remains one other source, Suffolk county,¹ more particularly available for the needs of Brooklyn than the Catskill region.

The Board of Water Supply states that Suffolk county is eliminated from consideration by act of Legislature, but at the hearings held before your Commission, the corporation counsel² of the city expressed great doubts whether that restricting act applied to the underground water of that county.

* * * *

Your engineer is of the opinion that the authorities of the city of New York have delayed so long with these other more available and cheaper sources that the Board of Water Supply must, at least for the present, turn to one of the Catskill water sheds; but he is firmly convinced that if any relief is to be afforded at all to Brooklyn, where the situation is said by the Board of Water

¹ Testimony of William H. Burr, page 799. "It would not be a matter of surprise if it (additional water for Brooklyn from Suffolk county) amounted to 150,000,000 gallons per day."

Burr-Hering-Freeman Report, page 833. "A total supply of 112 to 140 million gallons may safely be estimated upon in considering the minimum yield of the water sheds in Nassau county. The Brooklyn Department has already developed a maximum of about 100 million gallons in their present water sheds. . . . It appears that yet 40 million gallons more of water may be developed in Nassau county."

Page 834, relating to Suffolk county, "Should furnish a total minimum supply of 176 million gallons."

² Testimony of G. L. Sterling, page 759. "Question of construction and effect of that statute has been raised, but has never been fought out in the courts."

Supply to be so pressing, its attention and efforts must be directed at once to Nassau and Suffolk counties.

Catskill Water Shed.

Since the city of New York must for the present, then, turn its attention to the Catskill water shed, it seems to your engineer unreasonable and unnecessary that approval be given for the acquirement of all of the four water sheds, for which petition is made; he believes that the Esopus shed alone, with proper restrictions for the wants of neighboring localities, will yield sufficient for the needs of New York city until the possibilities of Dutchess county, of the Ten-Mile and Delaware rivers, and of Suffolk county shall have been settled.

Your engineer believes that no consideration whatever should be given toward approving the plans involving Schoharie creek, because the compensation required to satisfy riparian owners on the Schoharie or Mohawk will prove so great that the city will be unwilling to ever carry that portion of its project into execution; approval by your Commission of the Schoharie plans would only involve a hardship on the land covered, and would in no way benefit to the city.

Your engineer believes that with the Ashokan Reservoir at approximately an elevation of 600 feet, and a 500,000,000 (not 250,000,000) gallons aqueduct to the city of New York, an intelligent handling of the flow lines of the reservoirs in the joint Croton-Esopus system will satisfy the wants of the city for a considerable period after 1912, when the system may first be expected to be in operation.

The city is not justified to bind itself to the other Catskill sheds in advance of the beginning of construction of the Esopus system, until the other more available sheds shall have been shown to be unobtainable.

Your engineer would approve the plan of the city to build now a 500,000,000 gallon aqueduct from the Ashokan reservoir to the Croton valley, even if the water shed to be acquired yields only 250,000,000 gallons per day, and there should not now be assured to the city a daily supply sufficient to fill that aqueduct to its capacity throughout all seasons. The line of that aqueduct should be situated so that if necessary water from either Dutchess county or from the other Catskill sheds might at some future time be permitted to enter.

It is believed that such an aqueduct would prove economical to the city:

First: Because its cost would not exceed greatly that of the smaller aqueduct¹ of 250,000,000 gallons capacity.

Second: Because it provides a great flexibility in the handling of the joint Croton-Esopus system, and

Third: There is no reason to believe that permission for the remaining Catskill water sheds will be refused, if the nearer sheds later shall prove unavailable.

Your engineer is not satisfied that the estimate of cost proposed by the Board of Water Supply to prevent the turbidity of the Esopus water is sufficient; the removal of the clay presents no serious engineering difficulties, but may involve the city to considerable expense above that estimated.

Your engineer is of the opinion that the present needs of no other municipality would be seriously interfered with by the acquirement of the Esopus shed by the city of New York, excepting as to minor details, which can be amicably arranged by the municipalities affected. It should be binding upon the city of New York to permit any municipality within the Esopus water shed to use whatever water it may need, and it should also be binding upon the city to sell to any municipality located along the line of its new aqueduct, and so desiring it, an amount of water proportioned to its own population and that of the city of New York.

In Conclusion.

Your engineer believes:

First: That every borough of New York city is in need of an additional water supply.

Second: That the proper order in which to acquire additional sources for New York city are:

- a. Nassau and Suffolk county for Brooklyn, Queens and Richmond particularly (190,000,000 gallons daily).
- b. Ten-Mile river (150,000,000 gallons daily).
- c. Dutchess county (260,000,000 gallons daily).
- d. Catskill water shed, or the Delaware river.

Third: That the present condition of affairs is such as to require that the city obtain relief by being permitted to acquire the

¹ Testimony of John R. Freeman before Commission, page 962.

Esopus water shed petitioned by the Board of Water Supply, but that further relief by the city should be obtained from some of the sources noted above; the petition for the acquirement of the Rondout, Catskill and Schoharie water sheds should be denied.

Fourth: That the city be permitted to construct an aqueduct of 500,000,000 gallons capacity from the Ashokan reservoir to the Croton valley and so designed, as to permit of simple connection with either the Dutchess county water sheds, or with the remaining Catskill water sheds.

Fifth: That the city be permitted to acquire the lands necessary to construct the works needed to store, to deliver or to purify the water of the joint Croton-Esopus to the boroughs of the city.

* * * *

In any future application, it should be imperative for the city of New York to show that it has exhausted its efforts to obtain additional water from Suffolk county, the Ten-Mile or the Delaware rivers.

With the existence of the Dutchess county exclusion act, the city can make no efforts to obtain water from that county, but it can and should urge the introduction and passage of a bill for its repeal.

Respectfully submitted,

MYRON S. FALK,
Consulting Engineer.

REPORT ON APPLICATION OF VILLAGE OF WHITE PLAINS.

January 18, 1906.

Hon. HENRY H. PERSONS, *President State Water Supply Commission, Albany, N. Y.:*

SIR.—The village of White Plains, Westchester county, incorporated in 1866, contained a population of 4,042 in 1890, 7,899 in 1900, and 11,579 in 1905. There are no manufacturing industries situated in the village, the bulk of the population being employed in the city of New York, which is less than 25 miles distant.

The village is now provided with a public water supply operated by the municipality. The construction of these works was begun in 1886, when a caisson well, 17 feet in diameter and 17 feet deep was driven. During the next eight years there were built two additional wells, one 25 feet in diameter and 25 feet deep, and one 30 feet in diameter and 20 feet deep; all the water is pumped, the pumping station containing two duplex pumps, each with a daily capacity of 500,000 gallons. There is now being installed an additional pump with a daily capacity of 2,000,000 gallons.

The water is not subjected to a purification process. The last analyses of the water were made on September 14, 1904, by J. Roemer, a chemist of White Plains, and on June 12, 1906, by the Lederle Laboratories; copies of these analyses are on file in the office of the Commission and they show the water to be entirely satisfactory in quality.

There are no complaints concerning the turbidity, odor or quality of the water.

Although the system obtains all its supply from wells, there is maintained one storage reservoir, with a capacity of about 90,000,000 gallons which feeds the wells indirectly by gravity.

The drainage area above the spillway of this reservoir is 250 acres, and the drainage area of the well basins is about 275 acres.

The municipality owns the entire water shed from which the present supply is obtained.

The village has made application to the State Water Supply Commission for the power to condemn land on the same water

shed, situated between the present reservoir and the well basins; the acquisition of this land would increase the available drainage area by about 200 acres. If the application of the village should be granted, the total drainage area will, therefore, be 775 acres.

No gaugings have been taken of the stream from which the water supply is obtained. No other municipality obtains water from the same water shed.

The system has at present 1,738 house connections, and the average daily consumption per inhabitant is 75 gallons. There are about 1,745 houses within the municipality and there are 20 1-inch and 2-inch house connections and 1,718 $\frac{3}{4}$ -inch and $\frac{1}{2}$ -inch house connections; there are 1,548 bath tubs, 1,560 water closets, 3,456 wash tubs, sinks and basins, 14,856 faucets, 1,528 meters and 254 hydrants.

The following quantities of water were pumped in the years indicated.

From January 1, 1899, to January 1, 1900, 123,913,119 gallons.

From January 1, 1900, to January 1, 1901, 153,486,360, gallons.

From January 1, 1901, to January 1, 1902, 179,934,015 gallons.

From January 1, 1902, to January 1, 1903, 210,696,842 gallons.

From January 1, 1903, to January 1, 1904, 219,432,285 gallons.

From January 1, 1904, to January 1, 1905, 234,209,435 gallons.

From January 1, 1905, to January 1, 1906, 268,919,413 gallons.

The average daily consumption for 1905 was, therefore, 737,-000 gallons; during the month of July, 1905, the average consumption was 838,518 gallons, and the present water shed with the storage now existing, will prove incapable in times of drought of supplying this quantity.

The pipe in use consists of 7,875 feet of 12-inch pipe, 7,200 feet of 10-inch, 4,450 feet of 8-inch, 9 $\frac{1}{2}$ miles of 6-inch, 11.06 miles of 4-inch and 4 $\frac{1}{2}$ miles of smaller sized pipe, and additions are constantly being made.

The water needs of this municipality are growing rapidly and the village requires an additional supply of water; the completion

of the plans proposed by the village will furnish satisfactory relief for some years.

No other municipality will suffer damage if the proposed work is constructed.

Your engineer is of the opinion that the village of White Plains needs an additional supply of water; that the proposed plans will furnish satisfactory relief for several years, and that no other municipality or other civil division of the State will be affected by the execution of these plans.

MYRON S. FALK,
Consulting Engineer.

REPORT ON THE APPLICATION OF THE CITY OF LOCKPORT.

June 19, 1906.

Hon. HENRY H. PERSONS, *President State Water Supply Commission, Albany, N. Y.:*

SIR.—The city of Lockport, Niagara county, contained a population of 16,038 in 1890, 16,581 in 1900, and 17,552 in 1905. Prior to 1887 the Holly Manufacturing Company supplied Lockport with water from the Erie canal for fire and sanitary purposes, but not for domestic purposes. The sources of supply for drinking and domestic purposes are wells and cisterns. The city of Lockport purchased the works of the company in 1887, issuing therefor \$43,000 worth of bonds, the last of which will be paid on November 1, 1906. The city contains a general sewer system which was begun in 1865.

The present water system consists of a pumping plant located on city property adjoining the intakes of the Lockport Hydraulic Race Company, and street mains, fire hydrants, and valves. All the water is pumped, and power is obtained from the Lockport Hydraulic Race Company.

The only reservoir at present is the Erie canal, and during the periods of its annual repair the only water obtainable consists of surface drainage, which finds its way into the canal, although a small quantity of water is fed into the canal from springs in its bottom and there is a certain amount of seepage or drainage through the locks on the line of the canal, at Sulphur springs, above the city; these locks are annually closed to withhold the waters of Tonawanda creek.

The present intake is located below several large sewers and inspection makes it evident that at no time is the quality of the water such as to permit its use for bathing or any domestic purpose. Moreover, during the time of repairs to the canal, the quantity of water obtainable is insufficient.

It appears from the report of the consulting engineer for the city of Lockport that there exist only two available sources for a new supply for the city, viz.: Niagara river and Tonawanda creek. It is his opinion that it is not practicable to obtain water from underground sources, on account of the limited quantities and

questionable qualities, and that Lake Ontario, situated about twelve miles to the north of Lockport, is at too low an elevation in relation to the city to permit of the use of its waters.

The consulting engineer rejects the Tonawanda creek in preference to the Niagara river for the reasons that the Tonawanda creek is under State and not national control, and that future extensions may, therefore, be imperilled; that the Tonawanda creek must be purified at once, which is not the case of the Niagara river. The engineer also questions the possible yield of the Tonawanda, fearing that feeders for the Erie canal may cause shortage, but he presented no figures of any kind. The estimated cost for the Tonawanda creek project, with intake south of Pendleton village, including a slow sand filtration plant, is \$463,000.

The plan advocated by the consulting engineer chooses as the source of supply, the Niagara river at Gratwick station; it makes no provision for purification and the engineer's reasons are stated in full in his report dated May 10, 1904. This plan proposes to extend a pipe about 2,000 feet into the American channel of the river at a point a short distance down the river from North Tonawanda. The outer end of this pipe is to be adequately protected by a submerged crib, and a pumping plant is to be placed just northeast of the New York Central railroad tracks. The plans propose two ten million gallon high duty pumping engines, arranged in duplicate with the necessary boilers and appurtenances and twelve miles of thirty-three inch steel force main, capable of delivering ten million gallons per day at a pressure of eighty pounds per square inch, at Lockport.

At the date of the above report, no analyses of Niagara river water had been made, but at the suggestion of the State Water Supply Commission, analyses, both chemical and bacteriological, were made during the spring of this year, and they show almost without exception that the water is not entirely satisfactory in quality, and not above suspicion as a drinking water. The consulting engineer of the city of Lockport makes specious arguments to show that the proposed sources would prove satisfactory to the city, stating that another city, North Tonawanda, takes practically the same supply without affecting its typhoid fever death rate; that many other cities in the United States use water considerably inferior; and that this source should be adopted because it will be so much better than the present supply.

Your engineer believes that such reasoning should never be the

basis for the study of a new water works, and that approval for the construction of a new water works plan should be denied unless the water to be taken can be shown to be absolutely above suspicion. The water of the Niagara river at the point where the city of Lockport proposes to take its new supply may not be absolutely dangerous to health, but in the opinion of your engineer, the water of that river at the point where it is proposed to install the intake, requires filtration.

Your engineer is of the opinion that the city of Lockport needs without delay a new source of water supply; that if the Niagara river as proposed be taken as a new supply, no damage will be inflicted upon any other municipal corporation or other civil division of the State, but your engineer would not approve of permitting the city of Lockport to use the Niagara river to be taken, at the point proposed as a source of supply, until the water from the same shall have been adequately filtered or purified.

Your engineer wishes to call attention to the plan which he proposed in his report of January 31, 1906, advocating for the use of Buffalo, Tonawanda, North Tonawanda, Lockport and Niagara Falls, a joint metropolitan system of water works in the same manner so successfully adopted for Boston and the neighboring cities.

Respectfully submitted,

MYRON S. FALK,
Consulting Engineer.

REPORT ON THE APPLICATION OF MALONE VILLAGE.

January 20, 1906.

Hon. HENRY H. PERSONS, *President State Water Supply Commission, Albany, N. Y.:*

SIR.— Malone is an incorporated village in Franklin county, and its population according to the State census of 1905, is 6,478. Previous to October 1, 1906, the water supply for this village was furnished by the Malone Water-Works Company; the construction of this system was begun in 1857, and at the time of the sale of this Company's works to the village, the system was a modern one, well maintained and of good efficiency. The system supplies in the village between 1,200 and 1,300 half-inch taps, and about 100 fire hydrants. The water is obtained from Horse brook, a spring brook, which empties into the Salmon river. The main intake is about 7 miles in a southeasterly direction from the village. The water is carried through 10 and 8-inch pipes to a reservoir, which is situated on a pinnacle about one mile from the village at an average elevation of about 200 feet above the village. The capacity of this reservoir is 1,600,000 gallons; the supply mains to this reservoir will furnish, according to the testimony before the Commission, between 600,000 to 900,000 gallons a day.

The system as installed is sufficient for the needs of the village today; but it is absolutely necessary to take steps to increase both the supply and the reservoir capacity.

Two methods of increasing the supply have been projected. One by the addition of another main from Horse brook to discharge either into the present reservoir on the pinnacle, or into an additional reservoir located adjacent to the reservoir; or by an entirely independent system, obtaining water from the Gleason springs, situated in a southwesterly direction from the village, about 1½ miles from the corporate limits of the village. In this latter system, it is proposed to develope four separate springs, which furnish about 400,000 gallons per day; these springs are at an average elevation of 50 feet above the spillway of the present reservoir; it is also proposed to construct near these springs, a

storage reservoir of 6,000,000 gallons, which reservoir is to be connected to the village by a 14-inch main. Should it later become necessary to increase the amount of water that can be obtained from these Gleason springs, it is proposed to extend the line in a southerly direction from the Gleason springs to Gulf brook, about 4 miles distant. Gulf brook is 262 feet higher than the Gleason springs, and may furnish the same quantity of water as those springs.

If necessary, at some future time, this pipe line could also be extended to include the so-called Pidgeon brook, of about the same capacity as Gulf brook, and also the West inlet of Lake Titus. The West Inlet is still further removed than the Gulf brook, and will furnish perhaps 800,000 gallons daily.

It is my judgment, after studying both the proposed sources, and with the aid of the gaugings that have been taken, that it would be more advisable for the village of Malone to extend its system along the lines of the present installed system, rather than to construct a new and entirely separate water-works. The capacity of the present system can be more than doubled by constructing at the site of the present intake an impounding reservoir to include the flows of Beauty and Roaring brooks, and by constructing an additional 12-inch main to the reservoir on the pinnacle. At this point it would be necessary to construct also an additional distributing reservoir, or preferably, a standpipe to store perhaps 2,000,000 or 3,000,000 gallons. These additions, together with the present system, would supply at least 2,500,000 gallons of water daily, and would provide ample domestic and fire service for a village of 15,000 inhabitants.

As to the relative costs of the two proposed systems, I believe that the initial construction for the Gleason spring project, involving only these springs, and none of the future extensions proposed, would be considerably less than the extension of the present Horse brook system; but this initial construction would be a temporary device only; with the construction of the 4-mile extension to Gulf brook, the initial costs of the two systems would more nearly be equivalent; it would, moreover, not be necessary to install the entire addition to the Horse brook system at once, but

additions to that system could also be made as required by the growth of the village.

The maintaining and operating expenses of the separate system of the Gleason springs, in connection with the present system, would be greatly in excess of that of the present system, even when the latter should be enlarged to double its size. Should the Gleason spring system be installed, the operation of the two systems, when combined, because of the difference in elevation of their reservoirs, may cause considerable annoyance. This objection carries comparatively no weight, however.

In conclusion, I would recommend to the village of Malone, that a series of gaugings be instituted on both the proposed sources of supply, and be continued for one year; no harm will result to the village by postponing additional construction for one year, and with the aid of parallel sets of gaugings from both streams, the question as to quantities of water from either source can be definitely determined.

Respectfully submitted,

MYRON S. FALK,
Consulting Engineer.

November 20, 1906.

APPENDIX II.

The following meetings were held by the Commission during the past year:

1. New York city Feb. 9, 1906.
2. New York city Feb. 10, 1906.
3. Lyons Falls Feb. 15, 1906. (Public hearing.)
4. New York city Feb. 20, 1906. (Public hearing.)
5. Albany Feb. 26, 1906.
6. Watervliet Feb. 28, 1906. (Public hearing.)
7. Constableville March 2, 1906. (Public hearing.)
8. Albany March 14, 1906. (Public hearing.)
9. Albany March 16, 1906.
10. Albany March 27, 1906.
11. Albany March 28, 1906.
- 12 Albany April 13, 1906.
13. Albany April 19, 1906.
14. Albany May 1, 1906.
15. Albany May 2, 1906.
16. New York city May 10, 1906.
17. New York city May 11, 1906.
18. Albany May 14, 1906.
19. Albany June 5, 1906.
20. White Plains June 6, 1906. (Public hearing.)
21. Lockport June 15, 1906. (Public hearing.)
22. Dansville and Mt. Morris. June 16, 1906.
23. Albany June 21, 1906.
24. Albany July 13, 1906.
25. Albany July 27, 1906.
26. Malone August 2, 1906. (Public hearing.)
27. Albany Aug. 10, 1906.
28. Albany Aug. 31, 1906.
29. Holland Patent Sept. 8, 1906.
30. Saratoga Sept. 25, 1906.
31. Malone Oct. 5, 1906. (Public hearing.)
32. Albany Oct. 12, 1906.
33. Brewster Oct. 24, 1906. (Public hearing.)
34. Bergen Oct. 30, 1906. (Public hearing.)
35. Albany Nov. 8, 1906.

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36. Brewster	Nov.	9, 1906. (Public hearing.)
37. New York city	Nov.	22, 23, 24 and 26, 1906.
38. Albany	Dec.	14, 1906.
39. Gloversville	Dec.	15, 1906. (Public hearing.)
40 Albany	Dec.	29, 1906. (Public hearing.)
41. Carthage	Jan.	4, 1907. (Public hearing.)
42. Albany	Jan.	11, 1907.
43. RAVENA	Jan.	12, 1907. (Public hearing.)
44. New York city.....	Jan.	18, 1907.
45. Carthage	Jan.	24, 1907. (Public hearing.)
46. Albany	Jan.	31. 1907.

APPENDIX III.

Applications for New or Additional Water Supplies filed with the State Water Supply Commission, November 3, 1905, to February 1, 1906.

- Application No. 1.— City of New York.
- Application No. 2.— City of Kingston.
- Application No. 3.— City of Oneida.
- Application No. 4.— Village of Lyons Falls.
- Application No. 5.— Village of Constableville.
- Application No. 6.— City of Watervliet.

The following applications have been received during the current year:

- Application No. 7.— Village of Millbrook.
- Application No. 8.— Village of White Plains.
- Application No. 9.— City of Lockport.
- Application No. 10.— Village of Malone.
- Application No. 11.— Village of Holland Patent.
- Application No. 12.— Village of Brewster.
- Application No. 13.— Village of Bergen.
- Application No. 14.— City of Gloversville.
- Application No. 15.— Village of Carthage.
- Application No. 16.— Hannacroix Water Company.
- Application No. 17.— City of Plattsburg.

APPLICATION No. 1.

IN THE MATTER OF THE APPLICATION OF THE CITY OF NEW YORK.

Further hearings were had on this application on the 9th, 10th and 20th days of February, 1906, on which latter day the hearings were closed. The original act under which the city of New York made its application, viz., Chapter 724 of the Laws of 1905, was at the request of this Commission amended by Chapter 314 of the Laws of 1906, which is given in the appendix. The Commission made and filed the following decision on this application on the 14th day of May, 1906.

Decision.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter
of
The Application of the City of New
York to the State Water Supply
Commission for the approval of its
maps and profiles of a new and ad-
ditional source or sources of water
supply for the City of New York.

Pursuant to chapters 723 and 724 of the Laws of 1905, the City of New York filed with this Commission on the 3d day of November, 1905, its application for a new and additional source of water supply, which application consisted,

I. Of the petition made by the mayor, George B. McClellan, dated November 1, 1905.

II. A statement of the Board of Water Supply of the City of New York, dated November 1, 1905.

III. A certified copy of a resolution by the Board of Estimate and Apportionment of the City of New York adopted October 27, 1905, approving and adopting the report and map of the Board of Water Supply of the City of New York.

IV. A report of the Board of Water Supply of the City of New York to the Board of Estimate and Apportionment of the City of New York, dated October 5, 1905.

V. A report of William H. Burr, Rudolph Hering and John R. Freeman in relation to providing an additional source of water supply for the City of New York made to George B. McClellan, Mayor, Chairman of the Board of Estimate and Apportionment of the City of New York, dated January 16, 1905.

VI. A report of J. Waldo Smith, Chief Engineer of the Board of Water Supply of the City of New York, dated October 7, 1905.

VII. A report of the Commission consisting of William H. Burr, Rudolph Hering and John R. Freeman made to Robert Grier Monroe, Commissioner of Water Supply, Gas and Electricity, dated November 30, 1903.

VIII. A report of John R. Freeman to Bird S. Coler, Comptroller of the City of New York, dated the 23d day of March, 1900.

IX. A map showing the proposed sources of water supply, reservoirs and aqueduct lines.

X. A small certified copy of such map.

XI. Two additional profiles.

This application, with its maps and plans, contemplates taking a new and additional source of water supply for New York City in the Catskill Mountain watersheds.

The Board of Water Supply of the City of New York was directed by chapter 724 of the Laws of 1905 to proceed immediately after its appointment "with all reasonable speed, to ascertain what sources exist and are most available, desirable and best for an additional supply of pure and wholesome water for the City of New York," and also to "make such surveys, maps, plans, specifications, estimates and investigations as it may deem proper in order to ascertain the facts as to such sources," and to report to the Board of Estimate and Apportionment of the City of New York, concerning such water supply, with recommendations as to what action should in its opinion be taken with reference thereto, so that the Board of Water Supply and the Board of Estimate and Apportionment might be able to determine from what source or sources and in what manner the City of New York might best secure an additional supply of pure and wholesome water.

The Board of Estimate and Apportionment was authorized to "adopt, modify or reject the whole or any part of" such plans, and was also authorized to "cause such additional surveys to be made, and such further information to be obtained as it should deem expedient to enable it to act intelligently in the premises."

Before the adoption, modification or rejection of such plans, however, either in whole or in part, the Board of Estimate and Apportionment was required to "afford to all persons interested a reasonable opportunity to be heard respecting the same," and to "give reasonable public notice of such hearing whereat testimony may be produced by the parties appearing in such manner as the Board of Estimate and Apportionment may determine." Notice of such hearing was also required to be given to the chairman and clerk of the board of supervisors of the respective counties in which the real estate proposed to be acquired is situated, at least eight days before the time named in said notice.

The final map, with plan or plans approved and adopted by the Board of Estimate and Apportionment was required to be executed in quadruplicate, one copy of which should remain on file with the clerk of said board, one be placed on file in the office of the Board of Water Supply, and one, or a certified copy thereof, filed in the county clerk's office or register's office of each county in which any of the land affected is situated, and one, or a certified copy thereof, filed in the office of the Commissioner of Water Supply, Gas and Electricity.

All of the preliminary steps required by said act to be performed by the City of New York have been complied with, except so far as said application applies to the rights affected by taking the real estate in the Schoharie watershed, the city having failed to give the notice required by law by publishing it in the counties of Schenectady and Montgomery.

The State Water Supply Commission, having received and filed the application of the City of New York aforesaid, caused public notice to be given in the manner required by section 3 of chapter 723 of the Laws of 1905, that it would meet at the Court House in the city of Kingston, N. Y., on the 27th day of November, 1905, at two o'clock in the afternoon of that day for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State that might be affected by such application. Such notice was given by publication in newspapers, and by posting copies thereof in conspicuous places in the localities to be affected.

The Commission, all of the members being present, met at the Court House in the city of Kingston, N. Y., on the 27th day of November, 1905, at two o'clock in the afternoon, as in said notice provided. The City of New York appeared by its Board of Water Supply and was represented by John J. Delany, its Corporation Counsel, and by George L. Sterling, Assistant Corporation Counsel. One hundred and twenty-six objections to the proposed plan were received and filed.

A. T. Clearwater appeared for the Ulster and Delaware Railroad Company, the Board of Trade of the city of Kingston, the Chamber of Commerce of the city of Kingston, the Cornell Steamboat Company, the First National Bank of Kingston, Samuel D. Coykendall, and for others.

Everett Fowler for the towns of Ulster, Marbletown, Olive, Saugerties, Hurley, Hardenbergh, Plattekill, Marlborough,

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Shawangunk, Shandaken, Esopus and for J. S. Whitney and others.

William D. Brinnier for Augustus Elmendorf, the Olive Telephone Company, John J. Middagh, the towns of Gardiner, Kingston, Lloyd, Rochester, New Paltz, E. S. Whitney, L. S. Schwartzwalder, and the Board of Supervisors of Ulster County.

Charles F. Cantine for Agnes R. L. Sheffield, James H. Sand, Martin Cantine Company and Diamond Mills Paper Company.

M. Lackey, Jr., for the Village of Tannersville.

Bernard & Van Wagonen for John P. Woolsey.

Milton O. Auchmoody for G. S. Stiles and Isaac Merrihew.

H. C. M. Ingraham for the Ramapo Water Co.

James Jenkins for the Rip Van Winkle Creamery Co. and Oscar Herman.

John R. Devaney and Isaac N. Cox for the Town of Wawarsing.

Augustus Van Buren for the City of Kingston.

J. M. Fowler for the Village of Pine Hill.

Linson & Van Buren for the Village of Saugerties.

C. M. Cartright for the Town of Hunter.

Robert McCord for Mary L. Brantington, Herwig Housman, Melissa Dutcher, the Town of Cortland, Westchester County, and the Board of Water Commissioners of Peekskill.

John N. Vanderlyn for William F. Mackey.

John G. Van Etten for Jane B. Winchell, George Van Wagonen, John J. Boice, the Eastern Dynamite Company, David Van Wagonen, Louis Bevier, John Van Wagonen, John H. Bush, Charles Pratt, Abram A. Vandemark, Margaret Kerr and in person.

Francis C. Merritt for J. C. Douglass, Alfred Bonesteel, Lester G. Douglass, Henry Johnson, Thomas C. Johnson, W. S. Taylor and Minnie Burger.

A. Page Smith for the Hudson River Electric Power Co. and the Empire State Power Company.

Benjamin I. Tallmadge for Edward M. Cole, the County of Greene, the Town of Windham and Catskill Mountain Telephone Company.

George L. Danforth for Schoharie County and the Middleburgh Schoharie Electric Light, Heat and Power Company.

Frank H. Osborn for the towns of Catskill and Prattsville.

William D. Cunningham for Trustees of the Village of Ellenville.

John R. Devaney for the Napanoch Water Company.
J. S. Frost for residents of Preston Hollow.
Thomas A. Fulton in person.
Frederick H. Denman for H. G. Lamont, H. C. Nash, P. L. Post, and the Ramapo Water Company.
W. R. Smith in person.
R. D. A. Parrott in person.
C. M. Cartright for the Trustees of the Village of Hunter.
A. M. Murphy for the Village of Catskill.
Betts & Betts for the towns of Jewett and Ashland.
Krum & Grant for Horace G. and Seward E. Gilman, Town of Schoharie, Village of Schoharie and John D. Grant.
Albert E. Bunting in person.
Francis A. Winslow, for the City of Yonkers.
Goodale & Henson for Howard L. Wheeler and nine others.
Frank H. Richmond for the Union Railway Company of the City of New York, the Yonkers Railroad Company and Henry A. Robinson.
Alexander Stoltz for the Valley Farms Company of Yonkers and for John O. Farrell and Frank Green as committee.
George R. Wood for Dutchess County.

The appearances having been entered, the Commission proceeded to hear the arguments and proofs for and against the proposed application. The application was presented with much learning and ability, and vigorously opposed by lawyers of rare legal attainment. Many days were occupied in hearing the testimony and arguments and every opportunity was given to enable each interest to fully present the questions involved. The testimony is voluminous and is accompanied by maps and diagrams illustrating the location of the proposed watershed, the plan of impounding water and of conducting it to the City of New York. Consideration of the questions presented and a critical study of the evidence given and arguments made, obviously required much time.

The question of providing a sufficient supply of pure and wholesome water to meet the needs of the growing City of New York has been for many years a subject of grave concern. The report of John R. Freeman made to Bird S. Coler, Comptroller of the City of New York, as early as March 23, 1900; the agreement made with the Department of Water Supply, Gas and Electricity on December 16, 1902, organizing the Burr-Hering-Freeman

Commission and instructing it among other things, to ascertain and report on "the future source of supply for the city, which shall be most available from the point of view of cost and quality of water, to meet the probable future conditions of the city, with the estimated cost of each, the probable yield of water from each and the length of time required to complete each, with general plans and specifications;" the studies and report of that commission submitted to Hon. Robert Grier Monroe, November 30, 1903; the studies and report of the Merchants' Association of the City of New York; the report of the National Board of Fire Underwriters of the City of New York, the discussions of the question by the Chamber of Commerce, the Manufacturers' Association of Brooklyn, the City Club, the New York Board of Trade and Transportation and other public-spirited bodies; the attention paid to this matter by the public press and on the forum and the profound interest manifested in legislation affecting the sources of the city's water supply; all these testify to its importance and interest. The value of an adequate supply of pure and wholesome water for New York City with its intimate connection with the people of every state in the nation cannot be overestimated. It is impossible to fully comprehend the disastrous results of a water famine in New York, affecting as it would every home and business therein.

The testimony given at the hearing showing the near approach of the City of New York to a water famine in case of two or three consecutive dry years,—and the dire results which would inevitably follow such a catastrophe, demand the execution of a plan to increase without delay New York City's water supply. The evidence of the engineers of the board of water supply makes it clear that, with the growing consumption of water in New York City, the present water supply is wholly inadequate to the city's future needs. This condition subjects the city to grave danger, and therefore it is the imperative duty of the city's officials to act promptly.

Conscious, therefore, of the gravity of the situation which confronts New York City, of the vast amount of money involved in the stupendous enterprise suggested, and with a full appreciation of the responsibility placed upon the Commission of either granting or refusing the application of the City of New York, the Commission entered upon the discharge of its duties in the consideration of this application.

The Commission is directed by the statute to determine

First: Whether the plans proposed are justified by public necessity;

Second: Whether such plans are just and equitable to other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof; particular consideration being given to their present and future necessities for sources of water supply, and

Third: Whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

To make the first determination requires consideration of the population of New York City and an estimate of the increase of its population; definite knowledge of the present sources of water supply for each of the boroughs of that city; careful study of the available yield of the proposed watershed, together with the quality of its waters; a just comparison of the merits in these respects claimed for other plans; and finally an estimate of the length of time necessary to put the proposed plan into operation, and the probable cost thereof.

The population of the City of New York is about 4,013,000, of which 2,112,000 are found in the Borough of Manhattan, 271,000 in the Borough of the Bronx, 1,358,000 in the Borough of Brooklyn, 198,000 in the Borough of Queens and 72,000 in the Borough of Richmond.

The population of the city is increasing at the rate of about three per cent. per year, which under existing conditions means an annual increase in the consumption of water of about fifteen million gallons per day.

The Boroughs of Manhattan and the Bronx are supplied from the watersheds of the Croton, Bronx and Bryam Rivers, having a total area of 382 square miles, of which the Croton shed contributes 360 square miles. The average draft from the Croton shed was about three hundred million gallons per day in 1905, whereas the safe yield of the Croton shed in dry periods, when fully developed, is estimated at three hundred and twenty million gallons per day.

Two aqueducts are available for conveying Croton water to the city, the old Croton aqueduct, with a carrying capacity of about eighty million gallons a day and the new Croton aqueduct, with

a carrying capacity of about three hundred million gallons per day.

The present water supply system in the Borough of Brooklyn has been developed by appropriating, first, all available streams and ponds, and then by adding shallow and deep wells driven into the sands of Long Island. All of the water for this borough is pumped, and some of it is pumped over five times. The average daily consumption in 1905 for that borough was about one hundred and twenty million gallons. The rainfall during that year was seven inches below the average, the borough was short of water and recourse was had to emergency plants and the purchase of water. Some of the water of this borough is so impure that it must be filtered. Such are the conditions, and in view of the legislation prohibiting the extension of the system into Suffolk county, they cause grave concern. The Boroughs of Richmond and Queens derive their supply principally from wells within their own limits and these supplies must be augmented in the near future.

It is thus seen that all the available sources of water within easy reach of the City of New York are nearly exhausted, and each borough is in immediate need of an additional supply.

It has become, therefore, the duty of the city authorities to increase the city's water supply by immediately adding to the system of each borough such sources as are available, as well as by adopting a broad and comprehensive scheme, which will provide an abundant supply of pure and wholesome water for the entire city for years to come. The latter plan has been adopted by the Board of Water Supply of the City of New York and is now before this Commission for its approval. The source of water supply in the proposed plan is the Catskill Mountain watershed, which is divided into four parts; first, the available watershed of the Esopus, which includes the Esopus river and its tributaries and contains 255 square miles; second, the available watershed of the Rondout, which includes the head waters of the Rondout river and its tributaries, consisting of 131 square miles and also three small watersheds tributary to the Rondout, having an area of 45 square miles; third, the available watershed of the Catskill, which includes the head waters of the Catskill creek and its tributaries and contains 163 square miles, and also six small watersheds tributary to the aqueduct between Catskill creek and the Ashokan reservoir having a combined area of about

82 square miles; and fourth, the available watershed of the Schoharie, which includes the head waters of the Schoharie creek and its tributaries and contains 228 square miles. The proposed plan provides for reservoirs in each of these watersheds, the largest being that at Ashokan with its surface about 600 feet above sea level and capable of holding one hundred and seventy billion gallons of water. This reservoir is to be connected with New York City by an aqueduct, having a carrying capacity of not less than five hundred million gallons every twenty-four hours.

It is estimated that these sources will afford a daily yield of at least five hundred million gallons of soft and wholesome water. The fact that the water of the Catskill Mountains is very soft is a strong argument in its favor. There is an essential difference between a soft and a hard water which appeals strongly to all who use it for domestic or manufacturing purposes. The softness of the water adds much to the comfort of those who must depend upon it, and also means a considerable annual saving in expense to them. Another strong argument in favor of the Catskill watershed is the fact that the water can be delivered by gravity to the Hillview reservoir and from there distributed under high pressure to the city without the additional cost of maintaining a pumping plant. This mountain region is not liable ever to become a manufacturing district or the center of a large resident population and is therefore peculiarly adapted for a permanent watershed.

As various other sources have been suggested and claims for their consideration urged because of merit similar to that claimed for the Catskill watershed, they have been given due and careful attention.

It appears from the report of the Commission's Consulting Engineer, Dr. Myron S. Falk, that if there were no prohibitive legislation against taking water from east of the Hudson river in Dutchess county and no legislation affecting Suffolk county, and if there were no legal objections to taking a supply from the interstate waters of Ten Mile river, a supply could be developed from those sources in less time and at a less expenditure than the Catskill plan will require.

Further consideration of the Dutchess county sources discloses one objection, viz: the hardness of these waters. The answer to this objection that these waters when mixed with the Croton would furnish a fairly soft resultant does not seem to

justify entire reliance upon such a mixture when soft water is elsewhere available.

The Suffolk county sources were referred to in the report of the Chief Engineer of the Board of Water Supply, dated October 7, 1905, as the "quickest and cheapest source of relief" for Brooklyn, and this water is of good quality. Prohibitive statutes and legal complications have, however, appeared so grave to the Board of Water Supply of the City of New York that it has not recommended the Dutchess county, Suffolk county and Ten Mile river sources, and did not include any of these sources in the plans submitted to this Commission.

This Commission, nevertheless, regards the Suffolk county source as very desirable, if not necessary for the Borough of Brooklyn, and the Dutchess county source as one which may become necessary as an alleviation of difficulties which may arise. In view, therefore, of the facts that five or more years will have passed before any water from the Catskill Mountain source can be turned into Croton Lake, that several years more will elapse before it will be conveyed directly to the city, that there is always present the danger of a water famine in New York until an additional supply is obtained, and that a supply from Suffolk and Dutchess counties, and from the Ten Mile river could be obtained in a much shorter period of time, the City of New York should take steps to secure the repeal of existing prohibitive legislation, and to remove the legal objections to taking the interstate waters.

That the City of New York might secure its waters from the Hudson river appears to the casual observer to be the simplest solution of its difficulties. This solution has been carefully considered by the State Commission, with the aid of the testimony, from its own observation, and from the studies of the Burr-Hering-Freeman Commission, and it finds that the Hudson river receives the sewage and drainage of a large and populous area, and from river traffic, which makes it unfit for use and more or less objectionable even if filtered. This fact, together with the necessity of constructing and maintaining compensating reservoirs in the Adirondacks to keep up the river's flow and to avoid the influx of salt water in dry seasons, forces the State Commission to the conclusion that although the first cost of the Hudson river project might be less than that of the plan proposed, it is not wise for the city to acquire this contaminated supply while a pure upland supply can be obtained. In the case of a Hudson

river supply, the city would be compelled to maintain and operate an expensive municipal filter and pumping plant; there appears therefore to be no good reason why the city should at this time take its additional water from a polluted and expensive source, when a pure gravity supply is available.

The question of taking water from the Adirondacks and the Great Lakes has been examined, but the enormous expense involved precludes the consideration of either of these sources for an immediate supply.

The attention of this Commission was also called to the subject of waste by various persons who were opposed to the plan under discussion, and whose testimony tended to show that the waste of water in New York City is unnecessarily large and might, if prohibitive measures were adopted, be prevented. An investigation had been made by the Burr-Hering-Freeman Commission with a view to determining the probable amount of preventable waste. The result of the investigations called the attention of the public and of the city authorities to the need of using every possible effort to save for legitimate and proper purposes all the water brought to New York City.

There were, however, two views taken of this subject. The adherents of the one claimed that if proper steps were taken, they would so relieve the conditions, that the present water supply would prove sufficient for several years, and that therefore this application should be denied, and the city authorities be required to turn their attention to preventing waste. The other view, was to the effect that while there is a waste of water, as must necessarily be the case in large cities, still the amount of this preventable waste is not sufficient to justify the city in failing to proceed with all conservative haste to the execution of plans for securing an additional water supply. Adherents of this latter view believe that although every precaution should be taken and necessary legislation secured to enforce the installation of water meters, yet the use of water is bound to increase rather than diminish with the growing demands of the city. The subject of preventing unnecessary waste is one to which the city authorities should at once direct their attention. While the extent of its practical effect upon the city's water supply is so uncertain, this Commission does not, in view of the imperative needs of the city, regard it as a sufficient reason for denying this application.

Returning to the consideration of the Catskill watershed, the cost of this plan is estimated by the Board of Water Supply to

be one hundred and sixty-two millions of dollars, and it is further estimated that from five to six years must elapse before the delivery of the water can be insured from this source to the Croton basin and from eight to ten years will be required to deliver at least two hundred and fifty million gallons per day to Hillview Reservoir and one hundred million gallons per day to the Boroughs of Brooklyn and Richmond. It is admitted that this undertaking will destroy several small hamlets and a vast amount of valuable property, and that the State cannot afford to permit the City of New York to enter an interior county nearly 100 miles distant, and condemn property there, unless the conditions demand it. But if the circumstances warrant it, the State cannot afford, by refusing to permit such entrance, to retard the growth of the great metropolitan city or to jeopardize the interest of its inhabitants. The City of New York should be permitted to provide for its needs, and at the same time the rights of the inhabitants of the district to be invaded should be protected.

The Commission is therefore of the opinion that the plans proposed are justified by public necessity.

Coming to the second question to be determined, viz.: are the said plans "just and equitable to the other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof," the Commission notes: first, that the territory from which New York proposes to take its further water supply lies west of the City of Kingston which has a population of 25,556. There are also many thriving villages located in and adjacent to these Catskill Mountain watersheds, some of which do now, while many more may in the future, require for their own use a portion of the water asked for by the City of New York. The law provides that the rights, inherent to these several communities, must be protected.

It is also clear that the execution of the plans will interfere in some ways with the existing rights of municipalities and other civil divisions of the State situated in this locality. The application of the City of New York was silent upon the methods to be followed in meeting this question of justice to these localities, thus leaving the matter for adjustment by the State Water Supply Commission. The injustice of the plans to these municipalities and civil divisions of the State was pointed out and discussed by the attorneys appearing for the several municipalities. To meet these objections and to provide a plan that would

be just and equitable to all of the municipalities affected, the Commission prepared amendments to sections 31, 35 and 41 of chapter 724 of the Laws of 1905, which amendments were approved by the City of New York, and the authorities of the city aided in having the act creating the Board of Water Supply of the City of New York and defining its duties amended.

These amendments provide as follows: In section 31, that no contract for construction to be performed in municipalities outside of the City of New York shall take effect until a bond in the penal sum of five thousand dollars (\$5,000) shall be given by the employer of labor to the municipality in which such labor may be employed, conditioned to save harmless and indemnify such municipality against any loss, expense or charge that it may legally incur because of pauper or indigent employees brought into such municipality and having no settlement therein.

In section 35, that the City of New York shall provide proper police protection to the inhabitants of the localities in which any work may be constructed under the authority of said act, and shall also pay any expense necessarily incurred by any county, town or city in any criminal action or proceeding against any person employed on any work constructed or in process of construction under said act, or in the suppression of riots among persons employed on said work, or in the prevention of the commission of crime by such persons, after the same has been duly audited, as required by law.

In section 41, so as to make it lawful for any municipal corporation or other civil division of the State within the watersheds of Esopus creek, Rondout creek or the Catskill creek in the counties of Ulster and Green, at its own expense to construct a pipe line or aqueduct connecting with any reservoir that may be constructed under the provisions of said act, in said locality, for the purpose of supplying water to such municipal corporation, or other civil division of the State the quantity of water to be drawn by such municipal corporation, or other civil division of the State, from said reservoir not to exceed the proportionate quantity that is used in the City of New York; such municipal corporation or other civil division of the State to pay to the City of New York a water tax or charge founded upon the quantity of water consumed, which rates shall be agreed upon between the parties or shall be fixed by the State Water Supply Commission after hearing all parties interested.

The amendment to section 41 also provides that in case any water shall be taken, under the provisions of said act, from the Esopus creek in Ulster county, the City of New York, shall at its own expense, cost and charge, and under a plan to be approved by the Common Council and City Engineer of the City of Kingston, build, construct, reconstruct, alter or change the sanitary sewers of the City of Kingston known as the 1st and 8th Ward sewers, which now discharge into the Esopus creek, so that the same shall discharge into the Hudson river, or into the Rondout creek, the City of New York becoming liable also for any and all damages which may result from the building or construction, reconstruction, alteration or changing of said sewers, and that the City of New York shall also acquire, by purchase or condemnation proceedings, all rights in or over private lands in said City of Kingston, which it may be necessary to acquire in order to build, construct, reconstruct, alter or change said sewers, with the right, however, to use the public streets in the City of Kingston for such construction.

The City of Kingston is now taking a portion of its water supply from the Mink Hollow stream, which is a tributary to the Esopus watershed, and included in the application of the City of New York. By a stipulation of the attorneys of the Cities of Kingston and New York, entered into at the hearing, it was agreed that said application should be amended by eliminating from it this Mink Hollow watershed above the dam which diverts its water into Cooper lake. The stipulation is approved by this Commission.

There are other municipalities embraced within the watersheds of the Esopus, Rondout and Catskill creeks and their tributaries which are now taking waters from said watersheds for the purpose of supplying their inhabitants with water for the usual municipal purposes, and the plans should be modified so as to protect and conserve the rights of those municipalities, as herein-after stated.

The amendments of sections 31, 35 and 41 of chapter 724 of the Laws of 1905, together with the modifications of the plans as aforesaid, make said plans just and equitable to the other municipalities and civil divisions of the State affected thereby.

The third requirement of the statute still remains for consideration, to wit: "do said plans make fair and equitable provision for the determination and payment of any and all dam-

ages to persons and property, both direct and indirect, which will result from the execution of said plans?"

The plans contemplate building a large storage dam at Ashokan on the Esopus river, with a flow line 600 feet above tide-water and high enough above the surface of the ground at that point to flood the entire Esopus valley from mountain to mountain, backing up the water for a distance of about 17 miles, submerging 10,120 acres and covering all of the villages and farm lands lying within this territory, and destroying or causing the removal of all houses, business places, schools, churches, cemeteries, railway stations and activities within such area. Here are established permanent homes, business places and market centers where employment is afforded to many people. All of this is to be broken up and the territory turned into one great impounding reservoir. The plans also contemplate the construction of many smaller reservoirs which will impound the waters of the other mountain streams, in some cases destroying villages and in many instances damaging business and property, both directly and indirectly, by abolishing markets, by destroying business opportunities, by decreasing the value of homes and farms and by depriving laborers of fixed and regular employment; in short by arresting all development of these localities.

All of these changes mean a readjustment of conditions in these communities. To protect such interests was the purpose of the third requirement of the statute.

This condition was the subject of much serious discussion at the hearing and the injustice it involved was forcibly urged by those filing objections to the plans of the City of New York. In rebuttal the City, in an elaborate paper by the Assistant Corporation Counsel, explained its plan and claimed that the scheme was just and equitable in every particular.

The Commission is convinced that the city's plan was neither broad nor specific enough to meet the requirements of the statute or to justify the city in so materially affecting the communities to be invaded.

Although given by the statute power to modify any plan so as to protect the people affected, this Commission became convinced that justice could be done to all parties by further amending chapter 724 of the Laws of 1905, and it therefore prepared a series of amendments which it believes fully protects the interests of the people that may be affected by the execution of the plans of the City of New York, yet works no hardship to that

city. These amendments were approved by the City of New York, and are now a part of the statutory law of the State.

They provide as follows:

Section 11 of chapter 724 of the Laws of 1905 as amended in 1906, provides that before the City of New York takes possession of any of the lands necessary for the execution of its plans, it shall pay to the respective owner or owners of each parcel of real estate taken, a sum of money equal to one-half the assessed valuation of same, as it appears by the assessment-roll of the town in which the same is situate for the year 1905, and provides, that a deposit of the money to the credit of, or payable to the owner of such land, pursuant to the direction of the Court, shall be deemed a payment thereon.

Section 37 of said act as amended provides that if the City of New York, or its representatives shall enter upon any lands not taken in pursuance of said act, for the purpose of preserving streams or water courses from pollution or contamination, or for the purpose of removing or causing to be removed, any buildings or improvements thereon, on the ground that the same may contaminate the water supply, it shall make just compensation to the owner of said buildings or improvements.

Section 42 of said act as amended provides that if any real estate, not taken by virtue of that act and chapter 723 of the Laws of 1905, or if any established business on the 1st day of June, 1905, situate in the counties of Ulster, Albany or Greene, should be, directly or indirectly decreased in value by reason of the acquiring of lands by the City of New York for an additional water supply, or by reason of the execution of any plans for such additional water supply by the City of New York, under the provisions of said act and chapter 723 of the Laws of 1905, the owner, his heirs, assigns or personal representatives, shall have a right to damages for such decrease in value, and that the commissioners, appointed to determine such damages, shall not be limited in the reception of evidence to the rules regulating the proof of direct damages. It also provides that a person employed in a manufacturing establishment or in an established business, or upon any lands who is not the owner or part owner thereof, or of any interest therein, in the counties of Ulster, Albany and Greene, which manufacturing establishment or established business is injured or destroyed, or which lands are taken or acquired under or because of the provisions of said act, who has been so employed continuously for six months prior to the 1st day

of January, 1906, and who continues in such employment up to the time of such injury, destruction, taking or acquisition, shall have a claim for damages against the City of New York equal to the salary paid such employee for the six months immediately preceding the 1st day of January, 1906, and that an action to recover such damages, if they cannot be agreed upon, may be maintained against the City of New York in the Supreme Court, not, however, for an amount to exceed the sum of the wages paid the party claiming such damages for the six months immediately prior to the 1st day of January, 1906.

The amendments were prepared after consideration of the evidence produced and the arguments made by the attorneys representing the objectors upon the hearing; also after a personal inspection of some of the territory proposed to be taken and a study of the laws of the State of Massachusetts, and the method adopted by the Metropolitan Water Board of that State in dealing with similar questions; and the Commission believes that the law as now amended makes fair and equitable provisions for the determination and payment of any and all damages, both direct and indirect, which may result from the execution of said plans, and that it also protects New York from paying exorbitant and improper damage.

The Committee, therefore, finds and determines:

First. That the application of the City of New York and the plans submitted for a new and additional supply of water, are justified by public necessity.

Second. That the said plans be and the same hereby are modified as follows:

The said City of New York is hereby prohibited from taking any of the waters of the so-called Mink Hollow stream above the dam constructed thereon by the City of Kingston to divert said waters into Cooper lake, and that any municipal corporation or other civil division of the State within the watersheds of the Esopus, Rondout or Catskill creeks, may at any time take water from any reservoir or aqueduct to be constructed under said plans, upon paying to the City of New York a water tax or charge founded upon the quantity of water consumed, which tax or charge may be agreed between the parties or shall be fixed by the State Water Supply Commission after hearing all the parties interested. And any of such municipal corporations or other civil divisions of the State may take water from said creeks and from other sources in said watersheds, as they may need from time to time for the

usual purposes of a municipal water supply; and it is further modified by striking out from the said application and the maps, profiles and surveys accompanying the same, the Schoharie watershed, and the said City of New York is prohibited from taking any of the waters of the Schoharie watershed; without passing upon the merits, for the reasons hereinbefore stated, viz: the failure of the city to give the public notice required by the statute in the counties of Montgomery and Schenectady.

That said plans as above modified, taken with the amendments made to sections 31, 35 and 41 of chapter 724 of the Laws of 1905, by chapter 314 of the Laws of 1906, are just and equitable to other municipalities and other civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

Third. That said plans taken with the amendments to sections 11, 37 and 42 of chapter 724 of the Laws of 1905, by chapter 314 of the Laws of 1906, make fair and equitable provisions for the determination and payment of any and all damages to persons and property both direct or indirect, which will result from the execution of said plans.

The State Water Supply Commission does hereby approve the said application of the City of New York with the modifications in the said plans submitted as hereinbefore stated and set forth, and which modifications it deems necessary to protect the water supply and the interests of the municipal corporations and civil divisions of the State, and the inhabitants thereof affected thereby.

In witness whereof, said State Water Supply Commission has hereby made the foregoing decision in writing, has signed the same and caused its official seal to be hereunto affixed, and the same, together with all plans, maps, surveys and other papers or records relating thereto, with the testimony taken by it, filed in its office in the City of Albany, this 14th day of May, 1906.

HENRY H. PERSONS,
President.

[L. S.]

MILO M. ACKER,
ERNST J. LEDERLE,
JOHN A. SLEICHER,
CHARLES DAVIS,
Commissioners.

APPLICATION No. 3.

IN THE MATTER OF THE APPLICATION (No. 3) OF THE CITY OF ONEIDA.

The following petition having been filed on the 2nd day of December, 1905, hearing was held on the 22nd day of December, when evidence was taken and counsel heard.

On the 16th day of March, 1906, the Commission made and filed its decision.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the City of ONEIDA for approval
of its maps and plans for water
supply.

To the State Water Supply Commission:

The petition of the City of Oneida respectfully shows:

First: That your petitioner, the City of Oneida, is a municipal corporation situated in the County of Madison and State of New York, and is incorporated by chapter 225 of the Laws of 1901, entitled, "An Act to incorporate the City of Oneida," and the acts amendatory thereof.

That said City of Oneida has a Board of Public Works and said Board of Public Works is charged with the duty of the maintenance, care and control of the water system of said city. Particular reference is hereby made to section 204 of the charter of said city, as amended by chapter 273 of the Laws of 1904. That the following named persons constitute said Board of Public Works: George L. Scheifele, Mayor, Ex-Officio Chairman; Jay Farrier, Clark A. Frost and Selden B. Bridge, all residing in the City of Oneida, New York.

Second: That in the year 1883 a certain water company under the name and style of the Spring Supply Water Company, whose objects and purposes were to supply the village of Oneida and the inhabitants thereof with water, acquired by deeds and contracts certain property, rights and privileges and easements, and thereafter said Spring Supply Water Company either became the Warner Water Works or transferred its rights, franchises and

properties to said Warner Water Works so that said Warner Water Works became the successors of said Spring Supply Water Company. That said Warner Water Works was an incorporation and as such owned and operated a private water system for supplying water in the village of Oneida and the inhabitants thereof.

That in or about the year 1895 the village of Oneida acquired all of the rights, properties, privileges, easements and franchises of said Warner Water Works by purchase at an expense to said village of the sum of \$150,000. That said \$150,000 was raised by bonding. That in and by said chapter 225 of the Laws of 1901 said village of Oneida became the city of Oneida and succeeded to all its rights and liabilities, and as such became the owner of the water system formerly owned by said village of Oneida. That said water system is situated wholly within said city and is what is known as the gravity system. That the capacity of said reservoir is about 22,000,000 gallons.

That the altitude of said reservoir is about 640 feet and the altitude of the portion of the City of Oneida supplied by said system is about 450 to 500 feet. That the range of pressure in the main is from seventy to seventy-nine pounds per square inch. That the drainage area for said water system is about one and one-half square miles and is situated entirely within said City of Oneida.

That in 1895 when said water system was acquired by the village of Oneida the amount of the real and personal property of said village as appears upon the assessment roll of the year 1895 was:

Real property	\$1,785,300 00
Personal property	166,400 00
Total	\$1,951,700 00

That the amount of the assessed property in said city as the same appears upon the assessment roll for the year 1905 for the corporation tax district of the city of Oneida, which corresponds very closely to the bounds of said former village of Oneida, is real and personal, \$2,985,868. That the population has increased, but the exact figures are not available. That less than one-half of the inhabitants of said corporation tax district are supplied with water from said water system, the remainder being supplied from wells.

That since the year 1895 there has been constructed a sewerage system in the village and city of Oneida at a cost of about \$123,000. That there is required for said sewerage system water to supply thirty-six flush tanks. That there are in said city also 105 hydrants for fire protection. That the water supply of said system has never failed, but on several occasions has been very close to the danger line and the city has been obliged to shut off the supply of water at night to allow for an accumulation sufficient for domestic use and fire protection. That the present reservoir is insufficient, its capacity being only about 22,000,000 gallons.

That said reservoir is situate in a ravine and takes the water from hills rising above it on either side, and a large amount of the rainfall runs off because of the insufficiency of said reservoir. That the total run off from the whole water shed is estimated at 388,000,000 gallons per year. That by actual tests the water which has run over the waste weir in two months from March 19th to May 19, 1905, was 149,145,000 gallons.

That it is proposed to establish an additional storage reservoir to impound and hold back a portion of this water. That the maps, plans and specifications for such additional reservoir are filed herewith and form a part of this application. That the capacity of said proposed reservoir is 60,000,000 gallons. That it is not proposed to acquire any new or additional source of water supply but simply to store the water of the stream now controlled by said city for its water system. That in order to create said additional reservoir it is necessary to acquire more land. That the flow lines of the proposed reservoir appear upon said maps and plans. That there is no other municipal corporation or other civil division of the State that will be affected by the proposed project. That the following are the lands to be acquired:

Parcel No.	Owner.	Acres.
1.	Romanzo L. Fields, Isophene Fields and children.....	1.09
2.	George B., John J. and Thos. F. Brophy.....	8.07
3.	George B., John J. and Thos. F. Brophy.....	0.14
4.	John H. Davis.....	9.33
5.	Heirs of James E. Bortle.....	2.30
6.	Melissa A. Carey and Alice A. Bortle.....	6.04
7.	J. E. Stone and J. W. Freeman.....	4.05
8.	William S. Moot.....	5.34
9.	Austin B. French and Delos and Howard Stebbins....	3.72

That all of the owners of said land, except parcel No. 5, 2.30 acres, are of full age and sound mind, and the plan and scheme of the acquisition of the land is by purchase or agreement, and options have been procured from each of said persons and accepted except that the option from said Brophys has not been acted upon as yet.

That options have been obtained as follows:

No. 1. R. L. Fields, 1.09 acres.....	\$55 00
No. 2 and 3. George B., John J. and Thomas F. Brophy, 8.21 acres.....	2,000 00
No. 4. John H. Davis, 9.33 acres.....	2,500 00
No. 6. Melissa A. Carey and Alice A. Bortle, 6.04 acres	800 00
No. 7. J. E. Stone and J. W. Freeman, 4.05 acres..	600 00
No. 8. William S. Moot, 5.34 acres.....	500 00
No. 9. Austin B. French and Delos and Howard Stebbins, 3.72 acres.....	600 00

That all of said options have been accepted by said Board of Public Works except parcels 2 and 3, parcels 7 and 8 have actually been paid for. That a map of said proposed reservoir and land to be taken similar to the one filed with this petition has been duly filed with the clerk of Madison county.

That said parcel No. 5 is owned by an estate and there are at least three minors interested and it is necessary to acquire said land through court proceedings, and it is proposed to acquire the same by friendly condemnation proceedings or by infancy proceedings, if the interested parties so prefer. That the widow and heirs of James E. Bortle, deceased, who are the owners of said No. 5, are Alice Bortle, widow; Melissa Mowry, Henry Bortle, Alice C. Bortle, Lemoyne Buyea, Grace E. Bortle, Hazel Bortle and James Bortle, all residing at Oneida, N. Y., except said Melissa Mowry, who resides at Whitelaw, N. Y. That of said heirs, Grace E., Hazel Bortle and James Bortle, are infants or minors.

That "so far as the petitioner is informed no other persons are affected directly or indirectly by the construction of said storage reservoir, except that Oneida Community, limited, a manufacturing corporation situate at Kenwood, N. Y., has made a claim for damages." That said original stream and water rights were acquired by said Spring Supply Water Company over twenty

years ago, and it is claimed on the part of said municipality that the damages of said Oneida Community, limited, if any, by reason of the construction of said original water system are barred by the Statute of Limitation; whether or not said Oneida Community, limited, will be directly or indirectly damaged by reason of the construction of said storage reservoir is a question not yet determined. That some negotiations have been had between said city and said Oneida Community, limited, to determine questions arising hereunder, but no conclusion as yet has been reached.

That the water taken from said water system is torrential in character and owing to the contour of the watershed would pass off suddenly after storms and freshets were it not for the impounding reservoir of said city. That the present dam of said reservoir has always leaked and parties who have made observations have claimed that the average flow of the stream below the dam is greater than formerly notwithstanding the amount diverted for public city use. That the manufacturing plant of the Oneida Community, limited, is about two miles distant from said reservoir. That said municipality is not prepared at present to admit any liability on its part to said Oneida Community, limited, by reason of the construction of the proposed reservoir. That all of the persons to be affected by said project so far as are known to the petitioner reside within the city of Oneida, N. Y.

Third: That the official reports showing the public necessity for said improvement and the proceedings of said municipality in relation to the same are hereby annexed and form a part of this petition, so far as the same are obtainable. That in most instances the official reports have been verbal and the record is incomplete and does not show a full purport of the same.

That in the year 1903 the necessity for said additional storage reservoir was established to the satisfaction of the then acting Board of Public Works of said city, and upon its request the proposition was submitted at the general election in 1903, for the appropriation of \$25,000 for the construction of said additional storage reservoir, and said proposition was duly adopted at said general election. That thereafter it became apparent that said \$25,000 was insufficient for the purpose intended, and in June, 1905, after bids had been received for the construction of said works and after the insufficiency of said appropriation had become apparent the proposition was submitted at a special election held in said city for the appropriation of \$20,000 additional for said

purpose. That said proposition was defeated. That thereafter another special election was called and a proposition submitted for the raising of \$45,000 by bonding, for the purpose of creating such additional storage reservoir, and the same was duly adopted. That thereafter the contract for said work was let and is now in progress. That all of the proceedings of said municipality in connection therewith as the same appears as a matter of record are set forth in the exhibit hereto attached.

Fourth: That the lands to be acquired for the proposed project appear on the map filed herewith and the boundaries thereof fully appear by metes and bounds. That the direct damage to said property owners is not so great by reason of the land appropriated as is the damage by reason of establishing a line to be fenced, which will exclude said property owners from using said water for farm purposes, the damage consisting principally of the taking of the running water supplied from the farm affected.

Fifth: That the public use for which the property to be acquired is to supply the City of Oneida and the inhabitants thereof with pure and wholesome water and to construct an additional reservoir for such purpose, and for the use of water in hydrants for fire protection.

That the petitioner has caused examinations to be made of other water supplies adjacent to the City of Oneida, and there is no other water supply equally as good that can be obtained for any amount reasonably within the means of said city to acquire. That the main pipes and distributing pipes and hydrants for said water system with all necessary stop gates and valves for a complete water system are already established in the corporation tax district of said city and a greater storage capacity is required for the purpose of meeting the increased population of said city and to prevent a failure of such supply in time of drought.

That as appears from the message of George L. Scheiefele, Mayor of said city, hereto attached, under date of June 16, 1905, said water supply has been several times nearly exhausted and it is unsafe to continue longer without the additional storage capacity. That all the property to be taken is necessary for the purpose stated.

WHEREFORE, Your petitioner prays that said State Water Supply Commissioner may take all necessary proceedings in the matter and give its approval of all proceedings herein necessary for the

STATE WATER SUPPLY COMMISSION.

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accomplishment of said project and for such other relief as may be proper under all the circumstances.

Dated November 28, 1905.

THE CITY OF ONEIDA,
Petitioner.

By G. L. SCHEIFELE, *Mayor,*
JAY FARRIER,
CLARK A. FROST,
C. M. RUGGLES, *Clerk.*

JOSEPH BEAL,
Attorney for Petitioner,
Office and Post-office Address,
Oneida, New York.

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter of The Application of
the CITY OF ONEIDA for ap-
proval of its plans, maps and
profiles for a new and additional
source of water supply.

On the 2d day of December, 1905, the City of Oneida filed with this Commission an application for the approval of its plans, maps and profiles for a new and additional source of water supply for that city.

Such application was accompanied by an exhibit of maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water then impounded, plans and surveys and abstract of official reports relating to the same, showing the need of such municipal corporation for a particular source or sources of water supply and the reasons therefor, and a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands, and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905.

This Commission caused public notice to be published in the

following newspapers and for the length of time stated below, viz.:

"The Oneida Post," a newspaper printed and published in the City of Oneida, Madison county, New York, for one week, date of publication December 16, 1905.

"The Oneida Weekly Dispatch," a newspaper published and printed in the City of Oneida, N. Y., for two weeks, dates of publication December 15 and 22, 1905, and

"The Oneida Union," a newspaper printed and published in the City of Oneida, N. Y., for two weeks, dates of publication December 14 and 21, 1905, that it would meet at the Common Council Chambers in the City of Oneida, N. Y., on the 22d day of December, 1905, at 10 o'clock in the forenoon, for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State of New York that might be affected by the execution of the plans of the City of Oneida for securing a new and additional supply of water, and that all persons, municipal corporations, or other civil divisions of the State of New York who had objections to the execution of said plans in order to be heard thereon must file such objections thereto in writing in the office of this Commission in the City of Albany, N. Y., on or before Thursday, December 21, 1905, or with the Commission on the date of its hearing.

On the 22d day of December, 1905, the Commission met in the Common Council Chambers of the City of Oneida at 10 o'clock in the forenoon, pursuant to notice.

Joseph Beal, City Attorney, appearing for the petitioner.

H. W. Cooley, appearing for the Oneida Community, limited, and filed objection.

D. C. Burke, appearing for George Brophy, Thomas Brophy and John J. Brophy and filed objection.

The City Attorney presented and filed due proof of publication of the notices, as stated above.

The Commission then made a personal inspection of the location of the proposed reservoir, and afterwards proceeded to examine the plans, maps and profiles filed with the application in this case, and to hear the proofs and arguments submitted in support of the proposed project, and those in opposition thereto, which said proofs and arguments were reduced to writing and typewritten, and have been filed in the office of the Commission, which proofs and arguments have been duly considered.

The proof shows that the City of Oneida owns its present water and sewer plants. Its water reservoir has a storage capacity not to exceed fifty days at the present rate of water consumption, and it is to be noted that the consumption of water is steadily on the increase. In seasons of low water flow, the consumption of water is over 100,000 gallons per day more than runs into the reservoir. There has been a shortage of water in the City of Oneida twice within a few years. Each time the water was drawn down so low that it had to be taken through the mud or clean out pipe for the city's use. In December, 1904, there was such a shortage of water as compelled the superintendent in charge of the works to shut off the water from the supply pipe at about 10 o'clock each night, and to turn it into the main again the next morning. This condition lasted for nearly thirty days, during all of which time watchmen were stationed near the gate at the reservoir ready to turn on the water in case of fire.

The proof also shows that the question of enlarging the present water plant, according to the plans submitted to the Commission, and at an expense of \$45,000 has been submitted to popular vote, and approved by the people of the City of Oneida. These plans provide for an additional reservoir of three times the capacity of the present reservoir, which capacity will be ample for the city's needs for many years.

The drainage area and sources of the additional water supply are wholly within the City of Oneida. From the testimony of the engineer, George S. Tibbits, who made the surveys, maps and plans, the quantity of water will be ample and can be secured at a very much less cost than from any other source. The water is of fair quality, except that it is very hard, a condition which prevails in this limestone region, and which cannot be overcome without going a great distance from the City of Oneida for water, and without an outlay of money greater than the sum which the city is willing to pay for an additional water supply.

The city has settled with all of the property owners whose property will be taken with but one exception, and that will have to be done through the courts on account of the interest of infants. The rights of no other municipality or other civil division of the State will be affected by the execution of the plans of the City of Oneida for a new and additional water supply.

Neither the evidence nor the plans make provision for the determination of indirect damages, neither does it affirmatively

appear in the testimony that there will be no indirect damages. That question, however, can be covered by an amendment to the application of the City of Oneida, which the Commission, under the law, is authorized to make and which it will make as a part of its decision.

The Commission hereby finds and determines that the plans proposed by the City of Oneida for a new and additional source of water supply are:

I. Justified by public necessity.

II. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

III. That said plans, as hereby modified and amended, make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of such plans.

The Commission does hereby approve the application of the City of Oneida with this modification and condition that a new paragraph be added, and is hereby added, at the end of the second subdivision of the petition after the letters "N. Y." on the sixth page, which shall read as follows:

If any person shall claim that he has suffered damages, either direct or indirect, by reason of the execution of the plans of the City of Oneida for a new and additional source of water supply, and shall file a statement of such claim with the Board of Public Works of the City of Oneida, showing in detail the nature and amount of the damages claimed, the Board will make a reasonable effort to adjust and pay such damages, if any. If a claim for indirect damages is not adjusted, and an action is brought in any of the courts of this State to recover the same, the court in which such action is brought shall not be limited in the reception of evidence to the rules regulating the proof of direct damages.

Witness our hands and the official seal of the State Water [L. S.] Supply Commission at the City of Albany this 16th day of March, 1906.

HENRY H. PERSONS, *President*,
MILO M. ACKER,
ERNST J. LEDERLE,
CHARLES DAVIS,
Commissioners.

The City of Oneida by Jerry F. Connor, its attorney, and Joseph Beal, of counsel, hereby stipulates that the modification and condition contained in the foregoing decision be, and hereby are accepted as binding upon the said city.

Dated, March 16, 1906.

J. F. CONNOR,
Atty. for the City of Oneida, N. Y.

JOSEPH BEAL,
of Counsel.

APPLICATION No. 4.

IN THE MATTER OF THE APPLICATION (No. 4) OF THE VILLAGE
OF LYONS FALLS.

The following petition having been filed on the 26th day of December, 1905, hearings were held on the 26th day of January, 15th day of February and 14th day of March, 1906, on which latter day the hearing was closed, except for reception of briefs of counsel which were submitted later, and the Commission made and filed its decision March 28, 1906.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the VILLAGE OF LYONS FALLS,
Lewis County, N. Y., for ap-
proval of its maps and profiles
of its proposed new source of
water supply.

To the State Water Supply Commission:

The petition of the Village of Lyons Falls, in the County of Lewis and State of New York, respectfully shows:

First. That the Village of Lyons Falls is a municipal corporation, organized and incorporated under the General Laws of the State of New York, being chapter 21 of the General Laws, denominated the Village Law, and in virtue of chapter 700 of the Laws

of 1900, enacted to cure an informality in the proceedings for the incorporation of said village.

That said village is situate within the County of Lewis in said State of New York.

That the population of said village is upwards of 700.

That Frank Hoskins is the duly elected, qualified and acting President of said village and Charles R. Barlett and Wescott Porter are the duly elected, qualified and acting trustees of said village and the said President and Trustees comprise the Water Board of said village, no separate Water Board ever having been adopted.

That in July, 1905, a petition duly subscribed by at least twenty-five electors of the said Village of Lyons Falls was presented to the said Board of Trustees for the submission of a proposition to the voters of said village qualified to vote upon a proposition, for the establishing of a municipal system of water works for the supplying the said Village of Lyons Falls and its inhabitants with water at an expense not exceeding \$25,000, to be borrowed on the bonds of said village. Thereupon the said Board of Trustees called a special election for submitting said proposition to said electors which election was held on the 12th day of August, 1905, and said proposition was duly adopted by a vote of seventy-three ballots cast for and thirty-one ballots cast against the same. That thereupon the Board of Trustees of said village by resolution duly adopted determined to construct and establish a system of village water supply, to cause surveys and maps and estimate of costs thereof and to issue bonds for providing the means to establish said system.

Second. That accompanying this petition and made a part thereof as an exhibit are maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded and to which reference is hereby made.

Third. That accompanying this petition and made a part thereof as an exhibit are said plans and surveys and the following abstract of the official report of Messrs. Knight & Hopkins, Civil Engineers, of Rome, N. Y., employed by said Board of Trustees to make an official examination and report, to-wit:

"Beauty creek has its sources principally in a cluster of springs about 2,000 feet east of the north and south road, and the point

we would suggest as a good place for the construction of a small reservoir is approximately 2,000 feet west or down stream from the north and south road, at which point the elevation of the stream is about 174 feet above the sidewalk in front of Watson Shaw's store. With this head an eight-inch supply main will give a good fire protection; that is three fire streams at the same time, a seventy-five feet vertical projection through a one-inch ring nozzle taken from three different hydrants or any two hydrants on Center or McAlpine streets.

Supply system.— Includes two and one-half million gallon reservoir with masonry core wall, surrounded with earth embankment on Beauty creek at the place mentioned above. The estimate of this reservoir includes a suitable monolithic gatehouse and all accessories for the proper management and regulation of the water, also 11,300 feet of eight-inch cast iron pipe and ball-joint pipes in the river crossing.

Distributing system.— Includes the following general features: 3,460 feet, eight-inch pipe; 3,020 feet, six-inch pipe; 6,230 feet, four-inch pipe; nineteen hydrants; also all valves, specials and other accessories for a complete distributing system."

That the need of said village for a water supply consists in part in the fact that there is absolutely no fire protection furnished said village and its inhabitants and no adequate water supply for domestic uses.

That for several years a private corporation known as the Beauty Spring Water Company has supplied water for domestic uses to such of the inhabitants of the said village as chose to submit to the exactions of said company and to endure the inconvenience of an inadequate supply of water. That the water supplied by said private corporation is taken direct from the stream known as small tributary to Beauty creek, and brought to said village and distributed therein through wooden pipes. That there is no adequate pressure sufficient for fire protection, and often the supply furnished by said company for domestic uses is so inadequate that in many dwellings in said village upon higher ground the water will not flow at all. Said private system has no storage reservoir connected therewith; the water mains are insufficient in size to carry an adequate supply; in dry seasons the water is arbitrarily shut off at times. The Black river is crossed by the mains of said company by iron pipes with offset joints to fit bed of river, causing much friction and hindering the flow and dimin-

ishing the pressure. This will be remedied in the proposed municipal system by use of iron pipes with flexible joints.

Said private company discriminates in rates, charging in some cases flat rates and in other cases meter rates, and has at times shut off the water wholly from desired consumers not in default, and the citizens of said village are entirely at the mercy of said private corporation in respect to cost and supply of water.

Fourth. That the plan or scheme to determine and provide for the payment of proper compensation for any and all damages to persons or property whether direct or indirect which will result from the acquiring said lands and the execution of said plans is to purchase the same and secure conveyance and release thereof if the amount can be agreed upon and if not then to acquire the same by condemnation proceedings in the form and manner declared by the statute in such case made and provided.

The village authorities are willing to acquire by purchase at a fair price if same can be agreed upon the system of water supply of the Beauty Spring Water Company and so far as practicable incorporate the same into the proposed municipal system, and negotiations are pending for that purpose but said authorities are unwilling to pay an excessive or extortionate price for same and are advised that they are not authorized to acquire same except upon the adoption of a proposition by the qualified electors of said village.

Fifth. There are no other municipal corporations or other civil divisions of the State affected by the proposed project and no such other municipal corporation or civil division of the State or inhabitants thereof are within the water shed of the proposed source of supply nor is the source of supply tributary to nor can the same be made tributary to any such other municipal corporation or civil division of the State, or to the inhabitants thereof, and there being none such the said plans are just and equitable in view of all the present and future necessities for sources of water supply.

Sixth. That a contract has been duly awarded for the construction of said proposed municipal system, a printed copy of the substance of which with specifications is herewith submitted as an exhibit and made a part thereof and to which reference is hereby made. The provisions thereof giving the Board of Trustees the right to diminish quantities as found on page three thereof will, as your petitioners are advised, allow of the incorporating of the Beauty Spring Water Company's system into the

municipal system should the same be acquired by the village, and unless so acquired the municipal system proposed will be supplied and distributed through 156 feet, twelve-inch cast-iron pipe; 2,400 feet, ten-inch cast-iron pipe; 12,846 feet, eight-inch cast-iron pipe; 3,631 feet, six-inch cast-iron pipe; 3,862 feet, four-inch cast-iron pipe; 324 feet, eight-inch flexible joint, and will produce a maximum fire protection pressure of seventy-five pounds to square inch.

Seventh. The approximate capacity of the storage reservoir planned in the said municipal system is 2,500,000 gallons. The drainage area covers about twenty-five acres, wild, uncultivated, and mostly wooded lands, not suited to agricultural purposes. The municipality already owns strip about 200 feet wide along both banks of Beauty creek for about one-half the distance between the proposed reservoir site and the source of supply. The source of supply is a very pure and wholesome stream, entirely uncontaminated, which has never been known to fail in an abundant supply of water in dry seasons.

There are 164 houses within the municipality and several large manufacturing establishments. The assessed value of the property within said municipality as shown by the last assessment roll is about \$425,000 and there is no bonded or other indebtedness outstanding except that voted for said water supply.

Your petitioner therefore prays that your Honorable Commission do approve this application and the maps and profiles, plans and surveys adopted by said village and herewith submitted and presented.

THE VILLAGE OF LYONS FALLS.

FRANK HOSKINS, *President,*
WESTCOTT PORTER,
CHAS. R. BARLETT,
Trustees.

STATE OF NEW YORK, }
LEWIS COUNTY. }
ss.:

FRANK HOSKINS, being duly sworn, says that he is the President of the Village of Lyons Falls, N. Y., that the foregoing petition

is true of his own knowledge, except the matters therein stated to be alleged on information and belief and as to those matters he believes the same to be true.

FRANK HOSKINS.

Subscribed and sworn to before me
this 18th day of December, 1905.

W. M. SHAW,
[L. S.] Notary Public.

'Decision.'

STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the VILLAGE OF LYONS FALLS,
for the approval of its plans,
maps and profiles for a new and
additional source of water sup-
ply.

On the 28th day of December, 1905, the Village of Lyons Falls applied to this Commission for the approval of its plans, maps and profiles for a new and additional source of water supply.

The application was accompanied by an exhibit of maps of the lands to be acquired and the profiles thereof, showing the sites and areas of the proposed reservoir and other works; by the profiles of the aqueduct lines and the flow lines of the water when impounded; by plans and surveys and abstracts of official reports relating to the same, showing the need of such municipal corporation for a particular source of water supply and the reasons therefor; and by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of such lands, and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905.

The Commission caused to be published a public notice in the following newspapers for the length of time herein stated, to wit:

In "The Boonville Herald," a newspaper printed and published in the Village of Boonville, Oneida county, N. Y., once in each week for two weeks, commencing on the 1st day of January, 1906, and in the "Journal and Republican," a newspaper published at Lowville in the County of Lewis, N. Y., once in each week for two weeks, commencing on the 11th day of January, 1906. Each of said notices read as follows:

"**PUBLIC NOTICE.**—Notice is hereby given that pursuant to section 3 of chapter 723 of the Laws of 1905, the STATE WATER SUPPLY COMMISSION will meet at the office of H. W. Bentley, Esq., in the Village of Boonville, N. Y., on the 26th day of January, 1906, at 11 o'clock in the forenoon of that day, for the purpose of hearing all persons, municipal corporations or other civil divisions of the State of New York that may be affected by the execution of the plans of the VILLAGE OF LYONS FALLS for securing a new and additional supply of water, plans for which have been filed with the New York State Water Supply Commission, at its office, No. 23 South Pearl Street, Albany, N. Y., where the same are open for public inspection; and for the purpose of determining whether said plans are justified by public necessity and whether the same are just and equitable to the other municipalities and civil divisions of the State of New York and to the inhabitants thereof affected thereby, and whether said plans make fair and equitable provision for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution thereof.

The execution of such plans will affect lands situate in the Counties of Lewis and Oneida and will also affect the flow of water in streams flowing in or through said Counties of Lewis and Oneida, the riparian rights on said streams, and also the water rights of said streams.

All persons, municipal corporations and other civil divisions of the State of New York who have objection to the execution of said plans, in order to be heard thereon, must file such objection thereto in writing in the office of the State Water Supply Commission in the City of Albany, N. Y., on or before the 24th day of January, 1906.

Every objection so filed must particularly specify the grounds thereof.

No person, municipal corporation or local authority can be heard in opposition thereto except on objections so filed.

Dated, Albany, N. Y., January 5, 1906.

HENRY H. PERSONS, *President,*
ERNST J. LEDERLE,
JOHN A. SLEICHER,
MILo M. ACKER,
CHARLES DAVIS,

State Water Supply Commission."

A majority of the Commission, including H. H. Persons, President, and Milo M. Acker and Charles Davis, Commissioners, met at the opera-house in the Village of Lyons Falls instead of meeting at the office of H. W. Bentley, Esq., in Boonville, all parties interested and appearing consenting thereto.

H. W. Bentley, appearing for the Village of Lyons Falls.

H. M. Wilbur, G. S. & H. L. Hooker, appearing for the objectors.

Levi H. Stewart, an objector, appearing in person.

H. M. Wilbur, G. S. & H. L. Hooker and L. H. Stewart, having previously filed written objections to the application.

H. W. Bentley presented and filed due proof of publication of the notices of the hearing.

The Commission made a personal inspection of the site of the proposed reservoir, of the watershed surrounding it and of the location of the Village of Lyons Falls, and also examined the plans, maps and profiles filed with the application in this case, and proceeded to hear the proofs and arguments submitted in support of the proposed project and those in opposition thereto, which proofs and arguments were reduced to writing and filed in the office of the Commission and it has duly considered the same.

The Village of Lyons Falls has a population of 709 persons and is situate in Lewis county, on the west bank of the Black river, near its confluence with the Moose river. - Its chief industry is the Gould Paper Mills where a large majority of the adult male population is employed. The formation of the rock upon which this village is situated is of such a character that it is impossible to obtain water from wells, as is usual and customary in most localities. This condition makes it absolutely necessary to provide water for domestic purposes and for fire protection from another source.

To meet the necessities of this village for water, the Beauty Spring Water Company was incorporated in June, 1896, with a paid up capital of three thousand dollars (\$3,000) and the construction of the present water-works was begun. The original cost of construction and of all additions and improvements thereto, together with all taxes and expenses, of administration superintendence, including salaries, amount to eleven thousand one hundred and sixteen dollars and eighty cents (\$11,116.80). All of this sum in excess of the original investment of three thousand dollars (\$3,000) together with a dividend equal to 6 per cent. per annum upon the original capital stock has been paid out of the earnings of the company.

This remarkable financial showing was only possible in so small a village, because every household and business place was dependent upon the Beauty Spring Water Company for its water.

The water is taken from Beauty Spring at a distance of about 675 feet from where it comes out of the ground, is soft and pure and is conveyed to the Village of Lyons Falls, a distance of about two and one-half miles, in wooden pipes ranging from eight inches in diameter down to one inch in diameter. The reservoir or head is a small box, about ten feet wide, forty feet long, two feet high and is at an elevation of 102 feet above the lowest point in the village and fifty feet above the highest point. The pressure is kept up by the flow of water from the spring, which is much greater than the capacity of the pipes. This elevation above the village is sufficient to furnish a pressure of only forty pounds to the square inch in the lower parts of the village and twenty-five pounds to the square inch in the more elevated sections. Such a pressure is wholly insufficient to afford fire protection to the Village of Lyons Falls. The proof is clear that during portions of the time, especially in the summer season, when water is largely used, it is difficult to draw water in the upper stories of the buildings in the higher portions of the village. Complaint is frequently made to the officers of the Beauty Spring Company about being unable to obtain water for domestic uses.

The objectors, the Beauty Spring Water Company, practically admit these facts in their offer to increase the efficiency of their water plant.

It is clear, therefore, that from all the evidence in the case, the people of the Village of Lyons Falls were justified in their vote for a new and additional water supply for domestic uses

and for fire protection, and that the plans proposed by it are justified by public necessity.

The proof shows that no other municipality or other civil division of the State will be affected by the execution of these plans.

The objections raised by the Beauty Spring Water Company that their rights are being invaded and their property destroyed is worthy of careful consideration by this Commission. In the consideration of the question, however, the Commission must keep in mind well-defined rules of law and be just and fair to all interested parties. To prevent the ruthless destruction of invested capital on the one hand, and not to impede the march of progress in a municipality on the other, is one of the purposes for which the Commission was created.

The Beauty Spring Water Company was incorporated in 1896 about four years before the incorporation of the Village of Lyons Falls. Immediately after the organization of the Beauty Spring Water Company, it obtained permission of the Commissioner of Highways of the Towns of Lyonsdale and West Turin to lay its pipes in the highways of said towns.

The Beauty Spring Water Company owns its water plant and is subject to competition, the same as any other business. There is nothing in its right to supply the Village of Lyons Falls with water that prevents any other company or any individual from asking for a franchise to lay pipes in the public streets of that village for the purpose of supplying its inhabitants with water, both for domestic use and for fire protection.

The objectors, the Beauty Spring Water Company, cannot in law, neither should they in morals, be permitted to defeat the wishes of the majority of the taxpayers of the Village of Lyons Falls to own their own water-works, providing the village is willing to be just and treat the Beauty Spring Water Company fairly.

Without the authority vested in this Commission, the Beauty Spring Water Company could not be heard in the proceedings of the Village of Lyons Falls to construct and own its water-works, but they would have to submit to the active competition of the village in supplying itself and its inhabitants with water.

To meet and fairly adjust such conditions as have arisen in this case, was one of the reasons for the creation of the Commission, which is required, among other things, to determine whether the plans of the applicant make fair and equitable provisions for the

determination and payment of any and all damages to persons and property, whether direct or indirect, which will result from the execution of said plans. The words fair and equitable are the soul of the act in so far as it relates to the questions under discussion. The applicant, by its plans offers to purchase the property of the objector and pay therefor a price to be agreed upon, but if a price cannot be agreed upon, then the village will agree to acquire the Beauty Spring Water plant by condemnation proceedings in the form and manner provided by statute.

The objection raised by the Beauty Spring Water Company that the Village of Lyons Falls is not legally incorporated is not well taken. Any defects there may have been in the proceedings or vote incorporating it have been remedied by subsequent legislation.

The questions of whether the proceedings to bind the village to raise money to build a new water plant were regular or not are not properly before the Commission. The evidence taken in these proceedings has been filed in the office of the Commission.

The Commission, therefore, finds and determines that the plans proposed by the Village of Lyons Falls for a new and additional source of water supply are:

I. Justified by public necessity.

II. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

III. That said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of such plans.

The application of the Village of Lyons Falls for a new and additional supply of water is hereby approved.

Witness our hands and the official seal of the State Water
[L. S.] Supply Commission at the City of Albany this 28th
day of March, 1906.

HENRY H. PERSONS, *President.*

ERNST J. LEDERLE,

JOHN A. SLEICHER,

MILO M. ACKER,

CHARLES DAVIS,

Commissioners.

APPLICATION No. 5.

IN THE MATTER OF THE APPLICATION (No. 5) OF THE VILLAGE
OF CONSTABLEVILLE.

The following petition having been filed on the 30th day of December, 1905, hearings were held on the 27th day of January and on the 2d and 14th days of March, 1906, on which latter day the hearing was closed except to receive briefs and on the 19th day of April, 1906, the Commission made and filed its decision.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the matter of the Application of
the VILLAGE OF CONSTABLEVILLE,
Lewis County, N. Y., for approval
of its maps and profiles of its pro-
posed new source of water supply.

To the State Water Supply Commission:

The petition of the Village of Constableville, in the County of Lewis and State of New York, respectfully shows:

First. That the Village of Constableville is a municipal corporation situate in the County of Lewis, N. Y., and duly incorporated under the laws of the State of New York on the 5th day of September, 1877, as appears by the certificate of incorporation thereof filed and recorded on that date in the office of the County of Lewis, and has a population of upwards of 500. That F. M. Ringrose is the duly elected, qualified and acting president of said village and G. E. Martins and Albert Hayes are the duly elected, qualified and acting trustees of the said village, and the said president and trustees comprise the Water Board of said village, no separate board having been adopted.

That at a special election of the electors of said village qualified to vote upon a proposition, held pursuant to an order of the Board of Trustees of said village adopted July 31, 1905, a proposition was duly submitted for the establishing of a municipal system of water-works for the supplying the said Village of Constableville and its inhabitants with water at an expense not ex-

ceeding \$17,000 to be borrowed upon the bonds of said village was duly adopted by a vote of 67 ballots cast for and 29 ballots cast against the same and one blank ballot, total number of ballots cast being 97, and the total number of qualified voters upon the last preceding assessment-roll being 116. That thereupon the Board of Trustees of said village by resolution duly adopted on the 29th day of September, 1905, determined to construct and establish a system of village water supply, to cause surveys and maps and estimate of costs thereof to be made and to issue bonds for providing the means to establish said system.

Second. That accompanying this petition and made a part thereof as an exhibit are maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded and to which reference is hereby made.

Third. That accompanying this petition and made a part thereof as an exhibit are said plans and surveys and also an abstract of the official report of William G. Stone of Utica, N. Y., civil engineer, employed by said Board of Trustees to make an official examination and report, and which report is hereto annexed, marked Exhibit A, and is made a part of this petition.

That the need of said village for a water supply consists in part in the fact that there is now absolutely no fire protection furnished said village and its inhabitants and no adequate water supply for domestic uses.

Fourth. That the plan or scheme to determine and provide for the payment of proper compensation for any and all damages to persons or property whether direct or indirect which will result from the acquiring said lands and the execution of said plans is to purchase the same and secure conveyance and release thereof if the amount can be agreed upon and if not to acquire the same by condemnation proceedings in the form and manner declared by the statute in such case made and provided. That to this end the said village has sold its bonds and is in possession of funds, the proceeds thereof, ample and sufficient for the purpose aforesaid.

Fifth. There are no other municipal corporations or other civil divisions of the State affected by the proposed project, and no such other municipal corporation or civil division of the State or inhabitants thereof are within the watershed of the proposed

source of supply nor is the source of supply tributary to nor can the same be made tributary to any such other municipal corporation or civil division of the State or to the inhabitants thereof, and there being none such the said plans are just and equitable in view of all the present and future necessities for sources of water supply.

Sixth. That a contract has been duly awarded for the construction of said proposed municipal system, a printed copy of the substance of which with specifications is herewith submitted as an exhibit and made a part hereof and to which reference is hereby made.

Seventh. The approximate capacity of the storage reservoir planned in the said municipal system is over 1,000,000 gallons. The extent of the drainage area, the source of supply and the character and purity thereof are abundantly shown by the maps accompanying this petition and by the official report of said engineer annexed hereto and marked Exhibit A.

Your petitioner therefore prays that your Honorable Commission do approve this application and the maps and profiles, plans and surveys adopted by said village and herewith submitted and presented.

THE VILLAGE OF CONSTABLEVILLE.

F. M. RINGROSE,
President.

G. E. MARTINS,
ALBERT HAYES,
Trustees.

STATE OF NEW YORK, }
ONEIDA COUNTY. }
ss.:

F. M. RINGROSE, being duly sworn, says that he is the president of the Village of Constableville, N. Y., that the foregoing petition is true of his own knowledge except the matters therein stated to be alleged on information and belief and as to those matters he believes the same to be true.

Subscribed and sworn to before me
this 22d day of December, 1905.

F. M. RINGROSE.


E. C. Dodge,
Notary Public.

EXHIBIT A.

UTICA, N. Y., December 19, 1905.

The President and Board of Trustees, Constableville, N. Y.:

GENTLEMEN.—In compliance with the requirements of Chap. 723, Laws of New York, 1905, I herewith present preliminary report covering the salient features of your proposed system of municipal water works, maps of same are submitted herewith.

The design contemplates a thoroughly efficient system and one that will give you about fifty pounds effective water pressure when using four fire streams collectively, discharging about one thousand gallons per minute. While you will rarely use this amount of water, the insurance authorities will be satisfied with not much less and while, like the pistol in Texas, you will seldom need it, when you do want it, you will want it bad. The static head on the pipe system, on the general village level, will be about 230 feet, corresponding to a pressure of about 107 pounds per square inch. As water is drawn from the pipes this pressure will decrease in proportion to the amount of water used.

In projecting an enterprise of this kind, one of the first questions to be met is that of the benefits to be derived. While exact information is not attainable, if the same ratio exists in your village as in others similarly situated, it is probable the aggregate amount of insurance carried is not less than \$300,000, costing the assured eighty, or thereabouts, or a gross annual premium of \$2,400. Usually, the introduction of an approved gravity system of water-works results in a reduction of insurance premiums of at least 33 per cent., or in this case of \$800 per annum. The direct saving in insurance premiums then will be \$800 per annum and probably more, as I think the estimate made very conservative. While it is unnecessary to burden this report with dry statistics, investigation will show that there is no instance in this or foreign countries where a municipal system of water-works has proven an unprofitable investment. Some private companies have failed, but it has been due either to mismanagement or political blackmail. In every case municipal plants have paid for themselves within a reasonable time and thenceforth afforded a

handsome revenue. This will be true of your village. Proof of this can be found in the cases of several villages within a few miles of your town. Next comes the improvement in the general sanitation of your village. While this element is intangible, incapable of measurement by the standard of dollars and cents, every student of sociology and hygiene knows that the introduction of in-door closets and bathrooms raises both the standards of health and morality, and inures to the general welfare, physically and morally, of the community. It is an old saying that "cleanliness is next to godliness," and no one better knows this than those who have watched the improvement due to the introduction of modern conveniences in a community. The introduction of hot and cold water in the kitchen, something practically impossible without a water supply under pressure, greatly lightens the work of the housekeeper. Its use for window cleaning, carriage washing, street and lawn sprinkling, etc., results in great saving in both time and labor. I have not laid particular emphasis on the subject of public health as I have no statistics as to conditions in your village. Cesspools and privy vaults certainly contaminate the soil and the filth therefrom has an insidious way of leaking into adjoining wells. While this water poisoning may not always result in typhoid fever, it does result in a general lowering of vitality that renders the individual especially susceptible to the inroads of disease. A pure and abundant water supply is one of the best conservators of the public health.

A careful inspection of the different possible sources of supply leads me to most unhesitatingly recommend the Smith spring (see map). No dwelling, barn, outhouse, stable or other building is so located as to become a possible source of contamination. The water is clear, cool, pure, and in abundant quantity and its rate of flow is but little, if any, affected by the seasons. I consider it an ideal source of supply. The acquirement of this spring will cause no damage or hardship to any corporate or other interests.

In the design of a water plant, the demands of the insurance authorities should be given attention as in this direction is found the first tangible return from the investment. The insurance authorities require the spacing of hydrants about 500 feet apart,

and also that the system (in a village of your size) should be capable of delivering four good fire streams through one and one-fourth inch or one and one-eighth inch nozzles. It is hard to conceive of a fire of sufficient magnitude (in your village) to demand an amount of water in excess of that amount and you could hardly afford enough hose to greatly exceed it. This demands about 1,000 gallons per minute, or 60,000 gallons per hour, or 720,000 gallons per twelve hours. As the reservoir is planned to hold over 1,000,000 gallons, the reservoir supply is ample. The service to be expected is about as follows: Taking the general level of the village, you can depend upon four one and one-fourth inch streams thrown to a vertical height of about 80 to 85 feet, and a horizontal throw of 125 to 140 feet. Fewer streams will be delivered with greater force and to greater heights and distances. As may be inferred from the context, the problem of proper pipe sizes is governed almost entirely by the water demand for fire protection. So far as purely domestic requirements are concerned, a three-inch pipe, under the conditions obtaining, would be ample but pipe sizes must be used to meet the abnormal demand in case of fire. Reference to the maps will show the proposed pipe sizes and the locations of valves and hydrants and radius of action of same.

In closing I desire to impress upon your honorable body the fact that it never pays to temporize in these matters. If you cannot afford to put in a good system, don't put in any. Your village now has a half-way system of fire protection that is unsatisfactory and of no real value in case of fire. The insurance authorities utterly ignore it and the same is true of your neighboring Village of Lyons Falls. The country is full of these abortions which simply represent a waste of money. If you put in a system that will fully meet all domestic and insurance requirements, you will have something that will be a credit to your village and its projectors and that will, in a short time, pay for itself and begin to accumulate a surplus. There is no mistake about this. It is the experience of every community that has gone into it. It goes without saying that, as a residential or manufacturing point, the attractiveness of the village will be greatly enhanced. All of which is respectively submitted.

W. G. STONE,
Engineer in charge.

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter
of
The Application of the VILLAGE OF
CONSTABLEVILLE for the approval
of its plans, maps and profiles for
a new and additional source of
water supply.

On the 30th day of December, 1905, the Village of Constableville made application by petition in writing, duly verified the 22d day of December, 1905, to this Commission, for the approval of its plans, maps and profiles, for a new and additional source of water supply for said municipality.

The application was accompanied by an exhibit of maps of the lands to be acquired and the profiles thereof, showing the sites and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, plans and surveys and abstract of official reports relating to the same, showing the need of said municipal corporation for a particular source or sources of supply and the reasons therefor; said petition was accompanied by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which would result from the acquiring of said lands and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905, and the rules and regulations heretofore made and adopted by this Commission for the proceedings thereunder as provided by section 2 of the aforesaid act.

The said petition, with the papers accompanying the same, were duly filed in the office of the Commission in the City of Albany, N. Y., on the 30th day of December, 1905.

The Commission thereupon caused a public notice to be given that on a day therein named, to wit, the 2d day of March, 1906, the Commission would meet at the Village Hall in Constableville, N. Y., at 10 o'clock in the forenoon of that day for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State of New York, that might be affected by the

execution of the plans of the Village of Constableville for securing a new or additional supply of water.

This Commission by resolution duly made and adopted determined that said notice should be published in the Boonville Herald, a public newspaper printed and published in the Village of Boonville, Oneida county, N. Y., for one week.

That hereunto annexed and forming a part hereof is a copy of said notice in the form prescribed by the Commission and the affidavit of the publication thereof duly verified February 24, 1906.

Prior to the time fixed for said hearing objections were made and filed in the office of the Commission at Albany to the project proposed by said application.

Upon the day and at the place specified in said public notice, and upon March 14, 1906, the subsequent day to which the hearing was adjourned the Commission proceeded to and did examine the said maps and profiles and heard proofs and arguments submitted in support and in opposition to the proposed project.

H. W. Bentley, Esq., appearing for the petitioner,

H. M. Wilbur, Esq., and Fred C. Schraub, Esq., appearing for the objectors.

The proofs and arguments taken and heard upon the said hearings were reduced to writing and were duly filed in the office of the Commission. The Village of Constableville is situate on the Sugar river in the Town of West Leyden, Lewis county, is one of the municipal corporations of the State of New York, duly incorporated in 1877, under the provisions of the General Village Law of 1870. It has now a population of 459, of which 338 are over twenty-one years of age, and an area of about 700 acres. The assessed valuation of its real property is \$110,890, and the number of its qualified electors, as appears by its last assessment-roll, was 116. There is no public supply of water for domestic uses. Of the 116 houses in the village fifty-four are supplied with water by some eight or ten different and private supply lines, with several houses on each line, the water being taken from springs, rising in the hills back of the village, with very few of sufficient head to carry to the second story of the dwellings. In addition to these private lines of pipe there are forty-four wells. The water supplied by these various springs is hard water and the inhabitants depend upon cisterns for laundry purposes. There are no water closets and but three bath tubs in the whole village, of the latter, one supplied by a pump operated by dog power and the other two

by water carried in pails. There appears to be no adequate water supply for fire protection; the present plan of fire protection consists of a pump maintained by the village which is connected with a steam sawing and planing mill and is operated in emergencies by the mill. This pump forces water through a four-inch pipe laid in the main street and two and one-half-inch pipes in other streets from a reservoir built by the village on the mill company property and under the pump having a capacity of about 200 barrels and liable to be exhausted in one and a half hours. Attached to these pipe lines are hydrants having top valves, necessitating in cold weather drawing off the water in order to prevent freezing. There is also an organized fire company and a hand engine.

At a special village election held August 18, 1905, the village adopted a proposition for establishing a municipal system of water supply at an expense of not to exceed \$17,000, upon which proposition the whole number of votes cast was ninety-seven, of which sixty-seven were in favor, twenty-nine opposed and one blank. Thereafter the authorities of the village carrying out the will of the people, as expressed at the special election, after investigation and due deliberation, proceeded to establish a water supply system and determined to take water by gravity from a spring so situate as to be freed from the probabilities of contamination, distant about two miles from and having an elevation of 492 feet above the village situate on one of the branches of the so-called White river, which is a small brook about fifteen feet wide, flowing into the town of West Leyden, where it unites with another small stream known as the Sugar river, a tributary of the Black river, which flows northward into Lake Ontario. From this spring the plans contemplate taking about 100 gallons of water per minute through a four-inch pipe to a proposed reservoir of 1,000,000 gallons capacity, the overflow of which finds its way by a small stream into the Sugar river. A eight-inch conduit connects the reservoir with the distribution plan in the village, where in the main street six-inch pipes are to be laid and four-inch pipes in all other streets. Seventeen hydrants with valves below frost level are located 500 feet apart, and in such position that each house will be practically within 250 feet of a hydrant. The design contemplates an efficient system of 100 gallons per capita per day, with fifty pounds effective water pressure when using five streams collectively, discharging 1,000 gallons per

minute and reaching a height of about eighty feet and a horizontal throw of from 125 to 140 feet. The static head on the general village level will be 230 feet, corresponding to a pressure of 107 pounds per square inch. No other general plan of supply for a new water supply was presented to the Commission.

It is therefore clearly shown and from all the evidence taken it appears that the electors of the Village of Constableville were justified in their affirmative vote of so large a majority for a new water supply for domestic use and fire protection.

The proofs show that no other municipal corporation or civil division of the State will be affected by the execution of the proposed plans and that the sources of the proposed supply are not available to other communities, and it was also made to appear that there is in this application no possibility of indirect damages to persons or property resulting from the execution of the plans. The damage, if any, caused by the diversion of the waters of the spring, from which the new supply is drawn from the White river, is a direct damage, and the plan or scheme presented by the applicant for compensation for direct damages is twofold:

First, by mutual agreement, if possible; *second*, by condemnation; to both of which plans no objection can be sustained; they have long been recognized as fair and equitable provisions for determination of such damages.

The collateral questions raised by the objections filed to the petition are:

(a) That the village election did not legally authorize the issue of bonds for raising money or providing means to establish a system of water-works, and

(b) That the proposition submitted and voted upon contained no authority to assess, levy and collect a tax to pay the bonds; are to be determined by the authorities of the Village of Constableville and are also proper subjects for further determination by the courts of the State, and are foreign and outside of the questions which this Commission was created to pass upon. Nor can it be held that this Commission in any instance can in any way pass upon questions of the amount of damages to persons or property. It does not believe that it was the intention of the Legislature to confer such power upon it.

The other objections presented are fully met by the proofs taken on the hearing and in this application by the plan or scheme presented by the applicant in its application on file in this office —

to determine and provide for the payment of the proper compensation to persons and property which will result from the acquiring of the lands and the execution of the proposed plans.

The State Water Supply Commission therefore determines:

I. That the plans proposed by the Village of Constableville are justified by public necessity.

II. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

III. That said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

The State Water Supply Commission does hereby approve the maps of the lands to be acquired by the Village of Constableville for a new or additional source of water supply and the profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the waters when impounded, plans, surveys and abstract of official reports relating to the same, and the plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans.

IN WITNESS WHEREOF, the State Water Supply Commission hath caused this determination and approval to be signed by the Commission and caused its official seal

[L. S.] to be affixed hereto and the same with all plans, maps, surveys and other papers relating thereto filed in the office at the City of Albany this 19th day of April, 1906.

HENRY H. PERSONS, *President,*
MILO M. ACKER,
CHARLES DAVIS,
JOHN A. SLEICHER,
ERNST J. LEDERLE,
Commissioners.

APPLICATION No. 6.

IN THE MATTER OF THE APPLICATION (No. 6) OF THE CITY
OF WATERVLIET.

The following petition was filed January 26, 1906. A hearing was held at the Common Council Chambers in the City of Watervliet on the 28th day of February, 1906, at which the city attorney, Mr. S. W. Russell, Jr., appeared "pro forma" for the petitioner. Mr. William Hollands appeared as attorney for certain citizens who favored the application and Mr. Samuel Foster appeared as attorney for the objectors. After this hearing and before a decision could be made, an election was held on the 16th day of May, 1906, in pursuance of chapter 79 of the Laws of 1906, passed March 21, 1906, at which the electors determined that plans, maps and profiles presented with this application should not be executed and on the 25th day of September, 1906, on the united request of the municipal authorities of Watervliet and of those opposed to the application, the proceedings were discontinued and dismissed without prejudice.

Petition.

WATERVLIET, N. Y., January 24, 1906.

*State Water Supply Commission of New York, Hon. HENRY H.
PERSONS, President, No. 23 South Pearl street, Albany, New
York.*

GENTLEMEN:—We, the undersigned, the Board of Water Commissioners of the City of Watervliet, do hereby petition your Honorable Commission to approve the maps and profiles for a new source of water supply for said City of Watervliet.

Your petitioners accompany this petition by the following exhibits of maps of the lands to be acquired, and profiles thereof, viz.:

1. Map showing the proposed storage reservoir at Crescent in the Town of Half Moon, Saratoga county, together with the flow lines of the water when impounded, and the site and area of the proposed impounding reservoir.

2. An atlas containing the map and profile of the pipe line from said impounding reservoir to the City of Watervliet, together with the plans for the dam and gatehouse at the impounding reservoir.

3. A map of the City of Watervliet showing the proposed distribution system.

4. A copy of the report of our engineer upon said plan including estimates of the cost thereof.

All of the foregoing plans and reports have been officially approved by your petitioners.

In addition thereto, we respectfully submit to your Honorable Commission that our plan or scheme to determine and provide for the payment of proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring said lands, and the execution of said plans, has been duly provided for by law in the act entitled "An Act to provide for a Board of Water Commissioners in the City of Watervliet and a proper supply for water for public purposes for said city, approved May 23, 1901" (P. L., N. Y., p. 1793, col. II, § 5), which reads as follows: "Whenever said board of water commissioners shall for any reason be unable to agree with the owner or owners of any lands, streams, water, water rights, or other real property, or right, interest or easement therein or appurtenances thereto, which may be required in the acquiring, constructing or maintenance of said system of water-works, as to the value thereof, they shall proceed to obtain the necessary title thereto in the manner provided by title one of chapter twenty-three of the code of civil procedure, known as the condemnation law."

The lands to be acquired are indicated on the map of the impounding reservoir and the maps of the pipe line to the city.

By arrangement with the Canal Board, the larger part of the right of way to the city will lie upon and within the right of way of the Erie canal; such location being advantageous to the Canal Board in that it will cause less interference with the future construction of the barge canal than a location upon the highway from Crescent to Cohoes.

Your petitioners furthermore certify that the only municipal corporations affected by the proposed project are the Town of Half Moon, Saratoga county, in which said storage reservoir is situated, and the aforesaid City of Watervliet. That the name of the Supervisor of the Town of Half Moon is as follows:

William H. Allen, Mechanicville, N. Y.

That the name of the Mayor of the City of Watervliet is Daniel P. Quinn.

Your petitioners further respectfully submit that such plans are just and equitable to said Town of Half Moon in Saratoga county, for the reason that said Town of Half Moon is a partially

settled town with no public water supply, but with an ample supply of water for private purposes readily obtainable from wells, and furthermore, that the tax of the said Town of Half Moon will probably not be decreased by the execution of said plans since the proposed constructions will be taxable by said Town of Half Moon under the laws of the State.

Your petitioners respectfully solicit your early and favorable attention to the approval of said plans.

D. P. QUINN,
F. B. DURANT,
JOHN W. HART,

Board of Water Commissioners in the City of Watervliet.

APPLICATION No. 7.

Made by the Village of Millbrook, Dutchess county, February 21, 1906, and withdrawn March 2, 1906.

APPLICATION No. 8.

Made by the Village of White Plains, Westchester county, April 20, 1906.

The following documents were filed with the application:

1. Petition made in behalf of the village by the Board of Water Commissioners under and by virtue of chapter 769 of the Laws of 1906.
2. Plans, maps and profiles showing sources and manner of obtaining additional supply of water.

Petition.

To the Honorable, the State Water Supply Commission,

GENTLEMEN:— Your petitioners respectfully show:

First. That your petitioners are, respectively, president and Secretary of the Board of Water Commissioners of the Village of White Plains, Westchester county, New York.

Second. That said Board of Water Commissioners was created by chapter 769 of the Laws of 1896.

Third. That this petition is made pursuant to a resolution of said Board of Water Commissioners adopted April 16, 1906.

Fourth. That it is necessary, in order to meet the increased demand for water in the Village of White Plains, to construct an additional storage reservoir, to be used in connection with the

present reservoir, for the purpose of holding and impounding the surplus water which now runs over the spillway of the present dam.

Fifth. The wall or dam of the proposed reservoir is located two thousand (2,000) feet below the present reservoir, on the same stream, and no additional stream is taken thereby.

Sixth. The source of supply is Tompkins Brook, which empties into the Bronx river at a point in the Village of White Plains, and about two thousand nine hundred (2,900) feet below that portion of the watershed now owned by said village.

Seventh. The Bronx river is not used as a source of water supply below the point where the Tompkins brook empties into said river.

Eighth. Accompanied herewith we submit:

Maps of lands to be acquired.

The site and area of the proposed reservoir.

The flow lines of the water when impounded.

Ninth. The method of paying for construction, acquiring and paying for the necessary lands, and any damages resulting therefrom, is provided by chapter 769 of the Laws of 1896.

Your petitioners pray that the State Water Supply Commission may approve the maps and profiles herewith submitted, and grant the application herewith made.

Dated, WHITE PLAINS, N. Y., April 19, 1906.

LEWIS C. PRATT,

HARVEY HUSTED,

Petitioners.

CHRISTOPHER HARMON, *Notary Public.*

STATE OF NEW YORK, }
COUNTY OF WESTCHESTER. } ss.:

On this 19th day of April, 1906, before me personally came LEWIS C. PRATT and HARVEY HUSTED, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that they are the president and secretary of the Board of Water Commissioners of the Village of White Plains; that they signed their names respectively, as president and secretary, to the foregoing petition by virtue of a resolution of the Board of Water Commissioners, passed on the 16th day of April, 1906.

CHRISTOPHER HARMON,
Notary Public.

Order for hearing was made on the 2d day of May, 1906, and public notice of the hearing was published in "The Westchester News" and "The Eastern State Journal," printed in the Village of White Plains for three successive weeks.

Hearing was had on this application at the courthouse and the office of the water commissioners in the Village of White Plains on the 6th day of June, 1906.

Messrs. Digney & Horton, attorneys and counselors-at-law of the Village of White Plains, appeared for the petitioner. No objections to the execution of the plans were filed and no other appearances.

The Commission made and filed on the 15th day of June, 1906, the following decision on this application:

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter
of
The Application of the VILLAGE OF
WHITE PLAINS for the approval of
its plans, maps and profiles for a
new and additional source of
water supply.

On the 20th day of April, 1906, the Village of White Plains made application by petition in writing, duly verified, the 16th day of April, 1906, to the Commission for the approval of its plans, maps and profiles for a new and additional source of water supply for said municipality.

The application was accompanied by an exhibit of maps of the lands to be acquired and the profiles thereof, showing the sites and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, plans and surveys and abstract of official reports relating to the same, showing the need of said municipal corporation for a particular source or sources of supply and the reasons therefor; said petition was accompanied by a plan or scheme to determine and provide for the payment of the proper compensation for any

and all damages to persons or property, whether direct or indirect, which would result from the acquiring of said lands and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905, and the rules and regulations heretofore made and adopted by this Commission for the proceedings thereunder as provided by section 2 of the aforesaid act.

The said petition, with the papers accompanying the same, was duly filed in the office of the Commission in the City of Albany, N. Y., on the 20th day of April, 1906.

The Commission thereupon caused a public notice to be given, that on a day therein named, to-wit, the 6th day of June, 1906, the Commission would meet at the courthouse in the Village of White Plains, at 10 o'clock in the forenoon of that day for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State of New York, that might be affected by the execution of the plans of the Village of White Plains for securing a new or additional supply of water.

Prior to the time fixed for said hearing no objections were made or filed in the office of the Commission at Albany to the project proposed by said application.

Upon the day and at the place specified in said public notice and at the office of the Water Commissioners of the Village of White Plains, the place to which the hearing was adjourned, the Commission proceeded to and did examine the said maps and profiles and heard proofs and arguments submitted in support of the proposed project. No objections, at any time, were made to the said project.

Messrs. Digney & Horton appearing for the petitioner.

No other appearance.

The proofs and arguments taken and heard upon the said hearings were reduced to writing and were duly filed in the office of the Commission.

The Village of White Plains is situate in Westchester county, is one of the municipal corporations of the State of New York, having been incorporated in 1866. Its population of 4,042 in 1890, and of 7,899 in 1900, increased to 11,579 in 1905. Pursuant to chapter 769 of the Laws of 1896, sections 3 and 4 relative to the power of its Board of Water Commissioners, the application to the State Water Supply Commission was properly made by the Water Commissioners of the Village of White Plains in its own name.

The village is now provided with a public supply operated by the municipality. This supply is furnished by five caisson wells about twenty-five feet in diameter and about twenty-five feet deep; from these wells the water is pumped directly into the service pipes with a branch from the main line into water tower, the tower taking the overflow.

The drainage area of these wells or basins is 275 acres, all owned by the village; although the system obtains all its supply from these wells, there is maintained a storage reservoir having an area of about fourteen acres with a capacity of about 90,000,-000 gallons, the gate at the reservoir being so regulated that the water from the reservoir flows into a filter well and from it percolates into the other wells; there is also a branch from the reservoir running directly into the pump so that in case of emergency the reservoir water could be taken directly into the system. This reservoir is situate in the Town of North Castle, a short distance from the corporation limits of White Plains; it is fed by a number of springs and a small brook which rises within the watershed.

The drainage area of the watershed is about 250 acres; it is owned by the village and is free from habitations or use. The construction of these works was begun in 1886, when the first caisson well was driven. During the next eight years there were built two additional wells, and in 1899 the reservoir was constructed. All the water is pumped, the pumping station containing two duplex pumps, each with a daily capacity of 500,000 gallons. There is now being installed an additional pump with a daily capacity of 2,000,000 gallons.

The water is not subjected to a purification process. The last analyses of the water were made on September 14, 1904, by J. Roemer, a chemist of White Plains, and on June 12, 1906, by the Lederle laboratories; copies of these analyses are on file in the office of the Commission and they show the water to be entirely satisfactory in quality.

There are no complaints concerning the turbidity, odor, or quality of the water.

The system has at present 1,838 house connections, and the average daily consumption per inhabitant is 75 gallons. There are about 1,745 houses within the municipality and there are 1,718, $\frac{3}{4}$ and $\frac{1}{2}$ inch and 20 inch and 2 inch house connections;

there are 1,548 bath tubs, 1,560 water-closets 3,456 washtubs, sinks and basins, 14,856 faucets, 1,528 meters and 254 hydrants.

The following quantities of water were pumped in the years indicated:

From Jan. 1, 1899,	to Jan. 1, 1900,	123,913,119 Gals.
" " 1900,	" "	153,486,360 "
" " 1901,	" "	179,934,015 "
" " 1902,	" "	210,696,842 "
" " 1903,	" "	219,432,285 "
" " 1904,	" "	234,209,435 "
" " 1905,	" "	268,919,413 "

The average daily consumption for 1905 was, therefore, 737,000 gallons; but during the month of July, 1905, the average consumption was 838,518 gallons. In 1903 the reservoir was reduced below its normal level 6 feet; in 1904, $7\frac{1}{2}$ feet; and in 1905, 9 feet and 4 inches, equal to 50,000,000 gallons, and it is estimated that if the present increase continues, the reservoir will be exhausted this year. There are 1,900 consumers of water; this number is steadily increasing. One hundred and fifty taps were made in 1905, and 94 from the 1st of January, 1906, to June 1, 1906. The village is rapidly increasing in population; new buildings are constantly going up at the present time at the rate of 300 to 400 per year. The village is practically out of water every summer; the inhabitants are being urged to cut down the consumption in the summer, and in 1905 it was necessary to stop sprinkling the streets because of the scarcity of water.

The proposed plan to remedy this condition consists in building a new reservoir, the flow line of which will reach about the foot of the present reservoir. This will add to the reserve supply 125,000,000 gallons by impounding the overflow from the old reservoir which has been computed to be about 150,000,000 gallons per year.

It will conserve the flood waters of the present reservoir and impound the spring floods that now pass down the valley of the Tompkins brook into the Bronx river. This new reservoir is planned to cover about twenty-one and one-half acres of land, lies adjacent to the village line and will increase the available drainage area about 200 acres, now of practically unused lands, upon which there are very few buildings, no factories or schools or improvements, and only five families reside. No use whatever is made

of the water the new reservoir will impound, nor could it be made available for any purpose except that contemplated by the Village of White Plains.

The Tompkins brook, which is the outlet of the village watershed, flows into the Bronx river, at a point about 2,000 feet from the village line. From this point the Bronx river is not used in any way for a water supply or for water power, but as a drainage outlet for a populous district all the way to tide water. There are no other additional sources of supply; all other available supplies are now connected with other systems and the building of this new reservoir appears to be the only plan in sight, and while it cannot be considered as the only permanent plan, it will help out the village for a few years, probably not more than five, and if the Village of White Plains should continue in the future to grow as it has in the past, and there should arise a need for more water, some arrangement will have to be made with some other municipality to supply the village with additional water, it could not then be well maintained that the village had done all it could to help itself.

It is, therefore, clearly and conclusively shown and from all the evidence taken it appears that the plans proposed by the Village of White Plains are justified by public necessity.

The proofs also show that no other municipal corporation or civil division of the State will be affected by the execution of the proposed plans and that the sources of the proposed supply are not available to other communities, and it was also made to appear that there is in this application no possibility of indirect damages to persons or property resulting from the execution of the plans and the plan or scheme presented by the applicant for compensation for direct damages is twofold:

First. By mutual agreement, if possible.

Second. By condemnation.

To both of which plans no objection can be sustained; they have long been recognized as fair and equitable provisions for determination of such damages.

The State Water Supply Commission therefore determines:

I. That the plans proposed by the Village of White Plains are justified by public necessity.

II. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and

to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

III. That said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

The State Water Supply Commission does hereby approve the maps of the lands to be acquired by the Village of White Plains for a new or additional source of water supply and the profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the waters when impounded, plans, surveys and abstract of official reports, relating to the same, and the plan or scheme to determine and provide for the payment of proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans.

IN WITNESS WHEREOF, the State Water Supply Commission hath caused this determination and approval to be signed by the Commission and caused its official seal to be affixed hereto and the same with all plans, maps, surveys and other papers relating thereto, filed in the office at the City of Albany, this 15th day of June, 1906.

[L. S.]

HENRY H. PERSONS, *President.*

CHARLES DAVIS,

WALLACE C. JOHNSON,

ERNST J. LEDERLE,

MILO M. ACKER,

JOHN A. SLEICHER,

State Water Supply Commission.

APPLICATION No. 9.

Made by the City of Lockport, May 24, 1906.

The following documents were filed with the application:

1. Petition.
2. Report of Charles A. Hague, Civil Engineer.
3. Supplement report of Charles A. Hague as to cost of construction and maintenance.
4. Official ballot.

5. Canvass of election.
6. Plans, maps and profiles.
7. Affidavits of citizens showing necessity.
8. Analyses of water.
9. List of property owners affected.
10. Options.
11. Charter and financial statement of city.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the CITY OF LOCKPORT for ap-
proval of its maps and plans for
water supply.

To the State Water Supply Commission:

The petition of the city of Lockport respectfully shows:

First. That your petitioner, the city of Lockport, is a municipal corporation situated in the county of Niagara and State of New York, and is incorporated under the Laws of the State of New York and is operating under a charter which is chapter 120 of the Laws of 1886, entitled "An Act to revise the Charter of the City of Lockport," and the acts amendatory thereof.

That said city of Lockport has a Board of Water Commissioners, charged with the duty of the maintenance, care and control of the water system of said city, subject in their acts to the approval of the Common Council under sections 137 and 138 of the city charter.

That the following named persons constitute said Board of Water Commissioners: Charles A. Hoag, President Edward M. Grigg and Frank M. Bredell, all residing in the city of Lockport, New York.

That the following named persons constitute the Common Council of said city of Lockport: Michael J. Radigan, James J. Moran, Rudolph J. Brandt, John Young, James O. Ten Brook, Willard Hurst, W. Henry Argue, James McGlynn, Charles E. Carnall and William J. Fredericks, all residing in

the city of Lockport, New York. That Howard M. Witbeck is the mayor of said city of Lockport.

Second. That prior to the year 1887, a certain water company under the name and style of the Holly Manufacturing Company, among whose objects and purposes were to supply the city of Lockport and its inhabitants thereof with water, had acquired by deeds, contracts and franchises certain property, rights, privileges and easements, and did until the year 1887 supply the city of Lockport and its inhabitants with water taken from the Erie canal. That such water was used for fire and sanitary purposes, and was not supplied for domestic purposes, either before or after filtration. That said Holly Manufacturing Company was an incorporation and as such owned and operated a private water system for supplying water to the city of Lockport, and to the inhabitants thereof.

That in or about the year 1887, the city of Lockport acquired all of the rights, properties, privileges, easements and franchises of the said Holly Manufacturing Company, so far as its rights to operate a water supply system in the city of Lockport was concerned, by purchase and on or about the 1st day of November, 1887, for the purpose of such purchase and for new installations, bonds were issued as authorized by chapter 120 of the Laws of 1886 to the extent of approximately \$43,000, and thereupon became the owner of such water supply system and the improvements thereon, and thereafter and up to the present time it has owned, controlled and operated said water supply system, using the water from the Erie canal and operating for fire and sanitary purposes only. That such bond issue was approximately \$43,000, and the last of said bonds will be paid on November 1, 1906. That the capacity of said system is about 6,000,000 gallons daily. That such system was situated wholly within the city of Lockport.

That upon the 1st day of December, 1905, the amount of real and personal property of said city as appears upon the assessment-roll for the year 1905 was \$7,950,687. That the population, according to the census of 1905, was 17,552.

That the greater portion of the inhabitants of said city are supplied with water from the existing system, for fire and sanitary purposes there being a general sewer system in said city created since its incorporation on the 11th day of April, 1865, from time to time as the occasion required, and a general system for fire

protection. That the source of supply for drinking and domestic purposes is wholly from wells and filtered cistern water.

That the water system of said city consists of a pumping plant located on city property adjoining the Lockport Hydraulic Race Company's intakes, and a system of mains extending throughout the city with fire hydrants and taps for private use. That since the year 1887, when the city acquired such water system, it has paid to the Lockport Hydraulic Race Company the sum of \$2,000 per year in quarterly payments, for the purpose of taking water from such raceway for the power necessary to operate its pumping plant.

That the only reservoir used in connection with the system is the Erie canal, and during the periods of annual repair thereon, the only water which can be obtained for the system in the city of Lockport is the drainage water passing into the canal from the surface of the surrounding country, a small quantity obtained from springs in the bottom of the canal and the seepage or drainage from the dams of locks located at Sulphur Springs above the city on the line of the canal, which are annually closed to withhold the waters of Tonawanda creek. That the intake to such water system is located on the line of the canal below several of the large sewers of the city and that at all times and particularly during the process of canal repairs, the pumping station of said water-works system is obliged to supply through such system water which has passed into the canal from the sewers so located. That at no time during such repairs is the quantity of water sufficient, and at no time is it of a quality that permits of its uses for bathing or any domestic purpose.

That for a great number of years the inadequate supply, and the poor quality of water obtained within the city of Lockport has been a subject of discussion and investigation. The natural sources as springs, creeks, Lake Ontario and Niagara river have been in turn investigated, and the artificial source of digging artesian wells have received consideration, by reason of wells of that character being located in different parts of the city, and the reports and data connected with such investigations have in great part been fragmentary and in oral reports by council committees, and are not now available. That annexed to this petition and subsequently referred to are the reports in relation to the only possible source of supply, and which include the reports and proceedings in relation to the proposed supply.

That during the year 1904, an engineer by the name of Charles A. Hague was employed by the city of Lockport for the purpose of investigating the question of a water supply for the city, and particularly covering supplies from Niagara river and from Tonawanda creek. That on the 10th day of May, 1904, said Charles A. Hague reported to the Committee on Fire and Water on the propositions submitted and included therein estimates of cost, embodying Lake Erie water delivered to the city of Lockport at eight cents per thousand gallons as contained in the propositions submitted to the Common Council by a private corporation, commonly known as the Depew Water Company. That such report is hereto annexed and is marked "Exhibit A," and is hereby made a part hereof. That subsequent thereto and supplemental thereof Charles A. Hague made detailed estimates of the cost of both Niagara river and Tonawanda creek supplies, and such supplemental report is hereunto annexed and marked "Exhibit B," and is hereby made a part hereof.

That under section 135 of the charter of the city of Lockport, the first paragraph of which reads as follows:

"The city may purchase, construct, maintain and regulate water-works for supplying said city and its inhabitants with water and may purchase, lease or otherwise acquire such lands, easements, property, tenements, hereditaments, rights, privileges and franchises, as may be required therefor, within the counties of Niagara, Erie and Genesee; and in case the city is unable to agree upon the terms of purchase or lease of such property, it may acquire the same by condemnation proceedings. For the purpose of securing a supply of pure and wholesome water in and for the city for public and domestic purposes." The City of Lockport is authorized to purchase, construct, maintain and regulate water-works for supplying the city.

Under subdivision 2 of said section 135 of the city charter reading as follows:

"To submit to the electors of said city, any proposition, which may be adopted by it under the subsequent subdivisions of this section, or either of them; and no contract or agreement shall be entered into nor any bonds issued, as therein provided, until the proposition, which has been adopted by the common council, shall have been submitted to and approved by the electors as herein provided. Such proposition shall be submitted to such electors in the manner provided by the election law, at either a general or special election, and the common council is hereby

authorized to call a special election for such purpose. If a special election be called it shall be held in accordance with the provisions of the election law applicable thereto. The common council shall cause to be published twice in each week, for at least three weeks immediately preceding such election, in all the daily newspapers published in said city, a notice subscribed by the clerk of said city, containing in general terms the proposition or propositions to be submitted to the electors at such election, and the estimated expense to the city, involved therein or the amount of bonds to be issued therefor. Every elector qualified to vote at such election shall be entitled to vote upon such proposition or propositions, and a majority of all the electors voting thereon shall be necessary to the approval thereof. In the event of the failure of the electors of said city to so approve of any proposition or propositions so submitted, said common council shall have the power again to submit the same or any other proposition or propositions in the manner hereinbefore provided and to continue such submission from time to time until the approval of a proposition so submitted be had." It has the authority to submit to the electors propositions which may be adopted under subsequent subdivisions of the section.

Under subdivision 3 of said section 135 of the City Charter, which reads as follows:

"Acquire, construct, maintain, control and operate a system of water-works, with pumping stations, conduits, reservoirs and other requisites to furnish the City of Lockport with water from any source in Niagara, Erie or Genesee counties, or any body of water adjacent thereto. The Common Council and all persons acting under its authority and direction shall have the right to enter, appropriate, occupy and use any public street, highway, avenue, road or other public ground, for the purpose of constructing, maintaining and operating such water-works in the counties aforesaid, but shall, in all cases, restore the same to its former state of usefulness. A contract or agreement shall not be entered into under this section which shall require an expenditure of more than five hundred dollars, without first advertising for at least sixty days for proposals to enter into contract for the work or materials required, and all such contracts shall be let to the lowest bidder, who shall furnish such security for faithful performance as shall be approved by the council, and the council may reject bids, in its discretion, and readvertise for proposals. If the City of Lockport shall construct a system of water-works under the provisions of this subdivision, said Common Council

is hereby authorized to issue bonds in the name and upon the credit of the City of Lockport, which shall be executed by the mayor under the corporate seal of the city and countersigned by the city clerk, in an amount not exceeding five hundred thousand dollars. Such bonds shall bear interest at the rate of not to exceed four per centum per annum, and shall become due and payable at such time and place, and shall be of such denominations as the Common Council may direct, unless otherwise provided by law. If the amount of bonds issued under this subdivision, together with the then existing indebtedness of the city shall exceed ten per centum of the then assessed valuation of the real estate of the City of Lockport as shown by the last assessment-roll, then the bonds issued hereunder, in excess of such ten per centum, shall be made payable in not to exceed twenty years; and the Common Council shall provide for their redemption by raising annually a sum which shall produce an amount equal to the sum of the principal and interest on such bonds at their maturity. Such bonds shall be sold to the highest bidder, after the same shall have been advertised for not less than thirty days by the city treasurer, but in no event shall the bonds be sold at less than par. The moneys received from the sale of such bonds shall be placed by the city treasurer to the credit of the water supply fund, and shall be used for no purpose other than the discharge of the indebtedness incurred under the provisions of this section. All moneys required to pay the interest upon such bonds and the charges and expenses of maintaining and operating such water-works, over and above the receipts therefrom, and to pay and discharge said bonds, as the same shall from time to time become due, shall be raised by general tax upon the real and personal estate within said city, as the same may from time to time be bounded, in addition to any sum authorized by section 231 of this act, and in the manner provided by title 14 of this act. Upon the construction and completion of such water-works, the same shall be operated and controlled by the board of water commissioners of said city." The city has the right to acquire, construct, maintain, and operate water-works, obtaining water from any source in Niagara county. And under such section 135 has a right to condemn lands therefor and has a right to issue bonds in an amount not exceeding \$500,000.

That based upon the authority granted by section 135 of said city charter, and upon the determination that the Niagara river and Tonawanda creek supplies were the only supplies available to

the city of Lockport, the following action was duly had and taken by the common council on the 20th day of November, 1905:

LOCKPORT, N. Y., November 20, 1905.

"YOUR COMMITTEE ON FIRE AND WATER, to whom was heretofore referred the several propositions relating to a water supply for the city of Lockport, including the report of Charles A. Hague, Consulting Engineer, presented to the common council on the 16th day of May, 1904, having had the same under consideration, beg leave to report and recommend the adoption by the common council, for submission to the electors of the city of Lockport, at a special election to be held on the 19th day of December, 1905, under and in accordance with the provisions of chapter 268 of the Laws of 1902, the two following propositions:

"*Proposition one.* To acquire, construct, maintain, and operate a system of water-works, with pumping stations, conduits, reservoirs, and other requisites, to furnish the city of Lockport with water, from the Niagara river at a point at or near Gratwick station at a cost estimated at \$500,000, with bonds to be issued therefor to the amount of \$500,000.

"*Proposition two.* To acquire, construct, maintain, and operate a system of water-works, with pumping stations, conduits, reservoirs, and other requisites, to furnish the city of Lockport with water from the Tonawanda creek, at a point south of the village of Pendleton, upon that portion of the main body of the creek which constitutes a part of the Erie canal, at a cost estimated at \$500,000, with bonds to be issued therefor to the amount of \$500,000.

"YOUR COMMITTEE would further respectfully report that each of the above propositions is framed upon the report of Charles A. Hague, consulting engineer, heretofore submitted to the common council, for which report in detail reference is had to the files.

"D. ELWOOD JEFFERY,

"JAS. McGLYNN,

"S. J. McDONOUGH,

"R. W. BRADLEY,

"Committee.

"On motion of Alderman Jeffrey the report was adopted.

"Ayes—9. Noes—1. Alderman Lambert.

By Alderman McDonough:

"Resolved, That the city clerk cause to be published twice in each week, for at least three weeks, immediately preceding the

19th day of December, 1905, in all the daily newspapers published in the city of Lockport, a notice subscribed by the said clerk stating that a special election will be held on said 19th day of December, 1905, for the approval by the electors of the city of Lockport of the propositions for securing a supply of water in and for said city for public and domestic purposes, adopted by the Common Council this date.

" Such notice to contain in general terms the propositions to be submitted to the electors at such election, and the estimated expense to the city involved therein, or the amount of bonds proposed to be issued therefor, and complying in all respects with the provisions required by chapter 268 of the Laws of 1902 of the State of New York.

" Seconded by Alderman Radigan and adopted.

" Ayes — 10."

That pursuant to such action last above, and after notice duly published as by such action required, there was submitted to the people of the city of Lockport two propositions on a ballot in form as per "Exhibit C" hereto annexed and hereby made a part hereof. That the result of such election was on the 1st day of January, 1906, duly canvassed by the Common Council of the city of Lockport, acting as a board of canvassers, and the results of such election are set forth in the proceedings of that date, which are hereto annexed and marked "Exhibit B," and hereby made a part hereof.

That thereafter and on the 29th day of January, 1906, the following action was duly had and taken by the Common Council of the city of Lockport as a result of such election and canvass as follows:

" By Alderman McGlynn :

" *Whereas*, The Niagara river as a source of municipal water supply, having received a majority of all the votes cast at the special election held on December 19, 1905, and the same having been duly approved upon the canvass of the votes of said election;

" *Resolved*, That the Niagara river as a source of municipal water supply be accepted as the one desired by the people of the city of Lockport, as evidenced by the result of the said special election, and that the efforts of this Council be directed toward procuring a supply from such source pursuant to such vote.

" Seconded by Alderman Carnall and adopted.

" Ayes — 10."

That as a result of such preliminary investigation, official action, election, canvass and proceedings, it is proposed to establish, acquire, construct, maintain, control and operate a system of water-works with pumping stations, conduits, reservoirs and other requisites to furnish the city of Lockport with water from Niagara river, at a point at or near Gratwick station at a cost estimating at \$500,000; to issue bonds therefor to the amount of \$500,000; to condemn, if necessary, the lands and properties required therefor, and to use the present system of mains in the city of Lockport as a distribution medium from a standpipe to be located at or near the highest point in the city of Lockport, as shown by maps, plans and profiles hereto annexed and marked "Exhibit E."

That in carrying out such proposed plan, it will be necessary to establish cribs and intake pipes in the American channel of the Niagara river, to acquire pumping stations and install pumps at some point on the Niagara river; to acquire the lands, rights of way and easements for conduit pipe between the Niagara river and the city of Lockport; to acquire site and establish standpipe at some point in or near the city of Lockport, and to connect such standpipe with the distribution mains now within the city, and which will include in its completion the abandonment of the present pumping site, and an incidental saving of the amount paid to the Hydraulic Race Company for present power.

The maps of the lands to be acquired and the profiles thereof showing the sites and areas of the proposed works, the profiles of the aqueduct lines, and the flow lines of the water and the plans and surveys are set forth on "Exhibit E" heretofore referred to. The official reports relating to the proposed plan and the proceedings in relation thereto are set forth in "Exhibits A, B, C, and D" hereinbefore referred to, and the affidavits showing the need of such municipal supply are hereto attached and marked "Exhibit F" and are hereby made a part hereof.

The plan or scheme to determine and provide for the payment of proper compensation for any and all damages to person or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans is, that such payments and compensations for such damages will be from the bond issue authorized by subdivision 3 of section 135 of the Charter of the city of Lockport, and the method of acquiring such lands, easements, property, tenements, hereditaments, rights, privileges and franchises as may be required therefor, will be by agreement upon the terms of purchase or lease of such properties, or

by condemnation proceedings as provided by the first paragraph of section 135 of the city Charter of the city of Lockport.

That the names of all the municipal corporations and their civil divisions of the State affected by the proposed project, and the names of the chief executive officers thereof are as follows:

	Names of Officers:
City of North Tonawanda.....	J. P. MacKenzie, Mayor.
Town of Wheatfield.....	William H. Schmidt, Supervisor.
Town of Pendleton.....	Jacob Snell, Jr., Supervisor.
Town of Lockport.....	Chauncey E. Ernest, Supervisor.
City of Lockport.....	Howard M. Witbeck, Mayor.

That the plan or scheme to take water as proposed is just and equitable to each of the above-named municipal corporations and their civil divisions, and to the inhabitants for the following reasons:

First.—The source of supply is the Niagara river and the supply therein is inexhaustible.

Second.—The city of North Tonawanda in which the pumping station would be located and through which the aqueduct would pass already has a supply from the Niagara river, the location of which is about a mile above the proposed supply, and the proposed taking can in no wise affect such city.

Third.—The installation of the aqueduct in the streets of the city of North Tonawanda which is located in Niagara county is particularly authorized by subdivision 3, of section 135 of the charter of the city of Lockport.

Fourth.—The towns of Wheatfield, Pendleton and Lockport have not now any public supply and cannot be affected in any way by such taking, except the use of such portions of the highways as may be necessary for the installation of the conduits which is particularly authorized by subdivision 3 of section 135 of the city charter aforesaid, which subdivision particularly obligates the city of Lockport to restore streets and highways as before the using.

Fifth.—The city of Lockport is the applicant. The results obtained will be:

First.—A permanent supply.

Second.—A better supply.

Upon the question of the improvement and quality of the supply there is annexed hereto and marked "Exhibit G" tests of the water at the point in the Niagara river proposed to be used as an intake, accompanied by affidavits showing the method of taking and analysis, which "Exhibit G" is hereby made a part hereof.

That annexed hereto and marked "Exhibit H" and hereby

made a part hereof are the names of the private owners, over and through whose property the proposed conduit lines will pass, with the amount of acreage proposed to be taken, so far as the same can be ascertained. Also the names of the private owners of lands proposed to be taken for pumping stations and standpipe locations.

That further annexed hereto and marked "Exhibit I" and hereby made a part hereof, are copies of options showing the fair and reasonable values of the lands proposed to be taken for such conduit lines.

That so far as the petitioner is informed, no other persons or interests are affected directly or indirectly by the construction and operation of the proposed system of water supply, except that the names of some of the owners of lands proposed to be taken may not be given in full, but that such owners would be fully protected in their rights at the time of purchase or condemnation by reason of the notice then required to be given pursuant to the statute.

That the affidavits of the officials in charge of the water system of the city of Lockport, and the proceedings of the said municipality, in the creation of temporary expedients showing the public necessity for such improvement are hereto annexed and form a part of this petition, so far as the same are obtainable. That all of the proceedings of the city of Lockport in connection with the proposed supply as the same appear to be matters of record are set forth in the exhibits hereto attached.

That the lands to be acquired for the proposed project appear on the map filed herewith, and the boundaries thereof fully appear by metes and bounds.

That the actual damages to the property owners is extremely slight for the reason that the proposed line will not be to exceed ten feet in width, and under all circumstances, except where it runs along the public highway, it will be adjoining the fence lines of the railroad, and in no event will it destroy the use of any property other than that actually appropriated for the purpose. That throughout the entire length there are no buildings or erections which will require to be destroyed or removed in the construction, and the property actually appropriated can be subsequently used by the adjoining owners without damage to the city of Lockport.

That the public use for which the property to be acquired is taken is to supply the city of Lockport and the inhabitants thereof with pure and wholesome water, and to construct the necessary works for such purpose, and for fire and sanitary purposes in addition.

That the petitioner has caused examinations to be made of other

water supplies adjacent to and even further removed from the city of Lockport, and there is no other water supply equally as good that can be obtained for any amount reasonably within the means of said city to acquire.

That the mains and distributing pipes and hydrants for said water system with all necessary stop gates and valves for complete operation are already established within the corporation tax district of said city, and the present requirement is for a permanent and wholesome source of supply, for the purpose of meeting the needs of increased population and added uses, and to prevent the failure of supply during the times of ordinary canal repairs, and particularly during the times of the barge canal improvement, which is now immediately threatened.

That all of the properties proposed to be taken are necessary for the purpose stated.

WHEREFORE, Your petitioner prays that said State Water Supply Commission may take all necessary proceedings in the matter, and give its approval of all proceedings herein for the accomplishment of said project, and for such other relief as may be proper under all the circumstances.

Dated, May 18, 1906.

THE CITY OF LOCKPORT,

Petitioner.

By H. M. WITBECK, *Mayor,*

CHAS. A. HOAG, *President,*

EDWARD M. GRIGG,

FRANK M. BREDELL,

Board of Water Commissioners.

JAMES McGLYNN,

W. J. FREDERICK,

CHAS. E. CARNALL,

W. H. ARGUE,

MICHAEL J. RADIGAN,

JAMES J. MORAN,

R. J. BEANDT,

JOHN YOUNG,

JAMES O. TENBROOK,

WILLARD HURST,

Common Council.

J. FRANK SMITH,

Attorney for Petitioner,

Office and post-office address,

No. 1 Central Block, Lockport, N. Y.

STATE WATER SUPPLY COMMISSION.

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STATE OF NEW YORK, } ss.:
COUNTY OF NIAGARA. }

HOWARD M. WITBECK, being duly sworn, deposes and says, that he is the mayor of the city of Lockport, the petitioner in the above-entitled proceeding; that he has read the foregoing petition and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated to be alleged upon information and belief, and that as to those matters he believes it to be true.

H. W. WITBECK.

Subscribed and sworn to before me
this 23rd day of May, 1906.

THOS. F. FITZSIMMONS,
*Commissioner of Deeds, in and
for the city of Lockport.*

Order for hearing to be held in the Common Council Chamber of the city of Lockport on the 15th day of June, 1906, was made and filed by the Commission on the 25th day of May, 1906. Public notice of the hearing was published twice a week for two successive weeks in "The Daily Review," "Lockport Union Sun" and "The Lockport Journal," all printed and published in the city of Lockport.

Hearing was held pursuant to notice on the 15th day of June, 1906. Mr. J. Frank Smith, city attorney, appearing for petitioner. No objections had been filed against the project proposed by the application and no other appearances. The following decision was made and filed by the Commission on the 13th day of July, 1906.

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter }
of }
The application of the CITY OF LOCK- }
PORT, for the approval of its plans, }
maps and profiles for a new and }
additional source of water supply. }

On the 24th day of May, 1906, the city of Lockport, by its Board of Water Commissioners and officers, applied to this Com-

mission for the approval of its plans, maps and profiles for a new and additional source of water supply, which petition was on said day filed with the Commission.

The application was accompanied by an exhibit of maps of the lands to be acquired and the profiles thereof, showing the point in the Niagara river from which the water is proposed to be taken; by a profile of the aqueduct lines; by plans and surveys and official reports relating to the same showing the need of such municipal corporation for the particular source of water supply and the reasons therefor; and by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons and property, whether direct or indirect, which will result from the acquiring of such lands, and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905.

The Commission caused to be published a public notice in the following newspapers of the length of time herein stated, to wit: The Daily Review, the Lockport Union Sun and the Lockport Journal, newspapers all published in the city of Lockport, N. Y., once in each week for two weeks commencing on the 2d day of June, 1906, each of which notices read as follows:

PUBLIC NOTICE.

NOTICE is hereby given that, pursuant to section 3 of chapter 723 of the Laws of 1905, the State Water Supply Commission will meet at the Common Council Chamber in the City of Lockport, N. Y., on the 15th day of June, 1906, at 10 o'clock in the forenoon of that day for the purpose of hearing all persons, municipal corporations or other civil divisions of the State of New York that may be affected by the execution of the plans of the City of Lockport for securing a new and additional supply of water, plans for which have been filed with the New York State Water Supply Commission, at its office, No. 23 South Pearl Street, Albany, N. Y., where the same are open for public inspection; and for the purpose of determining whether said plans are justified by public necessity and whether the same are just and equitable to the other municipalities and civil divisions of the State of New York and to the inhabitants thereof affected thereby, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution thereof.

The execution of such plans will affect lands situate in the County of Niagara, State of New York, will also affect the flow of water in streams flowing in or through said County of Niagara, the riparian rights on said streams, and also the water rights of said streams.

All persons, municipal corporations and other civil divisions of the State of New York who have objection to the execution of said plans, in order to be heard thereon, must file such objections thereto in writing in the office of the State Water Supply Commission in the City of Albany, N. Y., on or before the 13th day of June, 1906. Every objection so filed must particularly specify the grounds thereof.

No person, municipal corporation or local authority can be heard in opposition thereto except on objections so filed.

Dated, Albany, N. Y., May 25, 1906.

HENRY H. PERSONS,
President.

MILO M. ACKER,
E. J. LEDERLE,
JOHN A. SLEICHER,
CHARLES DAVIS,

State Water Supply Commission.

The Commission met at the Common Council Chamber in the city of Lockport on Friday, June 15, 1906, at 10 A. M., pursuant to such notice.

Commissioners present, H. H. Persons, President, and Milo M. Acker, Charles Davis, Ernst J. Lederle and John A. Sleicher and Consulting Engineer, Myron S. Falk.

J. Frank Smith appeared for the city of Lockport.

There were no objections to the application filed and no appearances in opposition to the adoption of the proposed plans.

Proof of publication of the notices required by the order were filed with the Commission.

The Commission made a personal inspection of the source of the present water supply of the city of Lockport and examined the plans, maps and profiles filed with the application in this case, and proceeded to hear the proofs and arguments submitted in support of the proposed project, which proofs and arguments were reduced to writing and filed in the office of the Commission.

These proofs and arguments have been duly considered by the Commission and the location of the proposed source in the Niagara river was inspected by the Commission.

The city of Lockport is situated on the level lands in the western part of the State where it is impossible at a reasonable expenditure to obtain a gravity water supply. It has a population of 17,552 with an assessed valuation of \$7,950,687. It takes its present public water supply from the Erie canal. The sewer system of the city empties into the canal in many places above the point where the city takes its water. The water is limited in its use to fire, sanitary and manufacturing purposes and is not used for drinking or culinary purposes at all, except in a very few instances by the poor and ignorant people.

The source of the city's drinking water at the present time is from wells and cisterns, the cistern water being filtered in most instances.

Because of the leakage of the city's sewer system and the loose rock strata underlying the city through which the leakage from the sewers percolate, the wells are rapidly becoming polluted and unfit for use.

The question of obtaining water for this city from a new and pure source has been a subject of agitation for a period of twenty years or more. During this time many investigations and experiments have been made with a view of taking water from Lake Ontario, from springs near Williamsville, from deep wells, from Tonawanda creek and from the present source, to wit: the Erie canal.

Each and all of these sources after careful investigation have been found to be objectionable, either on account of the limited supply, or on account of the great cost and have therefore been abandoned.

The needs for a new and additional source of water supply are imperative and call upon those charged with that duty to take prompt action to supply that municipality with an abundance of pure water.

In view of the fact that there is no available source within the means of the city, other than the one proposed, the Commission have studied this source from the standpoint of its purity, abundance and availability. There are objections to it from the standpoint of purity. The reports made to the city of the Niagara river source and filed with the city authorities do not show it to

be a desirable water for drinking purposes, but on the contrary it does appear that this source is contaminated, but as it has the advantage of abundance and availability and may be purified, the Commission are of the opinion that the plans proposed by this municipality and as hereafter modified are justified by public necessity.

This plan proposes to extend a pipe about 2,000 feet into the American channel of the river at a point a short distance down the river from North Tonawanda. The outer end of this pipe is to be adequately protected by a submerged crib, and a pumping plant is to be placed just northeast of the New York Central railroad tracks. The plans propose two 10,000,000 gallon high duty pumping engines, arranged in duplicate with the necessary boilers and appurtenances and twelve miles of thirty-three inch steel force main, capable of delivering 10,000,000 gallons per day at a pressure of eighty pounds per square inch, at Lockport.

The evidence given upon the hearing clearly shows that taking the water from this source and conveying it to the city as is proposed and the execution of the proposed plans are just and equitable to all other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, because such execution of the plans will not in any manner whatever interfere with other municipalities, or the inhabitants thereof.

It is also clear from the evidence given upon the hearing that taking water from Niagara river for the city of Lockport in the manner proposed by the plans and specification will not damage any person or property either directly or indirectly, except such damages as arise by the condemnation of the property taken.

The plans of the city of Lockport are accompanied by a plan or scheme which provides for the payment of any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans.

In view of the fact that the Niagara river is not a pure source and is contaminated, the Commission recommends that the plans be extended so as to provide for the purification of the water the city proposes to obtain in order to avert the danger that may arise by using the polluted waters of the Niagara river from the point where water is proposed to be taken under these plans.

The Commission, therefore, in view of the urgent needs of the city finds and determines:

- I. That said plans are justified by public necessity.

II. That said plans are just and equitable to other municipalities and civil divisions of the State affected thereby, and to the inhabitants thereof, particular consideration having been given to their present and future necessities for sources of water supply.

III. That said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of such plans.

The application of the city of Lockport for a new and additional supply of water is hereby approved.

Witness our hands and the official seal of the State Water
[SEAL] Supply Commission at the city of Albany this 13th
day of July, 1906.

MILO M. ACKER,
CHARLES DAVIS,
WALLACE C. JOHNSON,
ERNST J. LEDERLE,
JNO. A. SLEICHER,
State Water Supply Commissioners.

APPLICATION No. 10.

Made by Malone village June 28, 1906.

The following documents were filed with the application:

1. Petition.
2. Engineer's report and statement of Ernest C. Gleason.
3. Plans, maps and profiles.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter

of

The application of Malone village, Franklin county, New York, for approval of its maps and profiles of its new source of water supply.

To the State Water Supply Commission:

The petition of Malone village, in the county of Franklin and State of New York, respectfully shows:

First.—That Malone village is a municipal corporation organized and incorporated under chapter 291 of the Laws of 1870,

which chapter was superseded by chapter 31 of the General Laws, called the Village Law, under and by which said village exists and is regulated, and that said village is situated within the county of Franklin, in the State of New York.

Second.—That the population of said village is upwards of 6,500.

Third.—That Thomas Hinds is the duly elected, qualified and acting president of said village, and B. A. Whitney, William Dempsey, Moses Bessette, Orville Moore, George A. Willson and E. A. Tetrault are the duly elected, qualified and acting trustees of said village, and the said president and trustees constitute the board of trustees of said village, and also the water board thereof, no separate water board ever having been elected or created.

Fourth.—That in December, 1905, propositions were duly submitted to the voters of said village qualified to vote thereon, for the establishment of a municipal system of water-works for supplying said village and its inhabitants with pure and wholesome water, a copy of which propositions voted upon by said village is as follows:

(1). Shall the trustees of Malone village establish a system of water-works for supplying Malone village and its inhabitants with water at an expense of not exceeding \$150,000?

(2). Shall the trustees of Malone village instead of establishing a new system of water-works acquire the existing system of water-works of the Malone Water Works Company, at an expense of not exceeding \$200,000?

(3). Shall the trustees of Malone village, in case the Malone Water Works Company refuses to sell its water-works system to the village at a price not exceeding \$200,000 proceed to establish a system of water-works for Malone village and its inhabitants at an expense of not exceeding \$150,000?

(4). Shall the trustees of Malone village issue bonds to the amount of not exceeding \$200,000 payable in equal annual installments, the first of which shall be due in five years and the last in thirty years from the date of issue, with interest payable annually, the proceeds of which shall be used in providing a water-works system for said village, and provide for the payment of interest and principal of said bonds as they become due?

(5). Shall the trustees of Malone village be authorized to institute the necessary preliminary measures for the establishment of a permanent sewer system for Malone village, the expense when estimated to be submitted to the voters for their approval?

Fifth.—A special election duly called and had for the submission of said propositions to the duly qualified electors authorized to vote thereon was held in said village on the 12th day of December, 1905, and said propositions were duly adopted by a vote as shown by the annexed certificate of R. McC. Miller, Village Clerk.

Sixth.—That thereupon the Board of Trustees of said village offered to purchase the plant of the Malone Water-Works Company, and to pay the said company therefor the sum of \$200,000, which, in the opinion of said board, is more than said plant is actually worth, but that said Malone Water-Works Company refused to accept said sum therefor, or to sell their plant at such price.

Seventh.—That thereupon the Board of Trustees of said village, by resolution duly adopted, determined to construct and establish a system of village water supply, to cause surveys, maps and plans thereof to be made preparatory to application to your Honorable Board for a certificate authorizing the same, and preparatory to issuing of bonds providing the means to establish and install said system.

Eighth.—Accompanying this petition and made a part thereof, as an exhibit are said maps of the lands to be acquired and the source of water supply and profiles thereof showing the site and distances of the proposed reservoirs and other works, the profiles of the pipe lines and the flow lines of the water, made by Mr. F. W. Dewart, civil engineer, and to which reference is hereby made.

Ninth.—Accompanying this petition and made a part thereof as an exhibit in connection with said plans and profiles is an abstract of the official report of Mr. F. H. Dewart, civil engineer, of St. Albans, Vermont, employed by said Board of Trustees to make an official examination and report thereon.

Tenth.—There is substantially no fire protection furnished in said village to a considerable portion thereof, namely: The south-westerly part of said village; that part of said village known as Pleasant, Wellington and Rockland streets, and Western Franklin street, as well as the southerly end of Webster and Academy streets, and Shields street, all of which are populous parts of said village.

Eleventh.—For several years a private corporation, known as the Malone Water-Works Company, has, by a gravity system, supplied water for domestic use to such of the inhabitants of said village as chose to submit to the exactions of said company.

and to endure the rules and regulations imposed by said company, and to pay the exorbitant prices asked by said company; that the fire protection obtained by said village has been from the hydrants of the said Malone Water-Works Company, under such rules and regulations as said company saw fit to prescribe and at such prices as it saw fit to ask.

The said Malone Water-Works Company was incorporated in 1857, its charter granted by special statute, chapter 156, Laws of 1857, providing that, in case of disagreement between the trustees of said village and said company, with reference to the prices to be paid for water for fire protection, application could be made to the Supreme Court for the appointment of commissioners to determine the same, but several years ago the said water company obtained a repeal of that portion of its charter and left the whole service of said company, both to the village and its inhabitants, a matter of contract, so that the inhabitants of said village as well as the village are at the mercy of the said company, both as to rules, regulations, quantity and price of water which said company will supply; said company has, by its exactions, built up at the expense of the village and its people a water system, the stockholders of said company contributing about one-half of the par value of the capital stock of said company; the capital stock of said company, several years ago under the old antiquated system, was \$50,000; then the stock was increased to \$75,000, and at that figure the present works was practically constructed, the company borrowing some money therefor, and it subsequently increased its capital stock to \$150,000 and declared a stock dividend to the then stockholders of 100 per cent., making its capital stock \$150,000, when apparently the stockholders contributed but \$75,000 in the construction of the old antiquated system and the construction of the so-called new system, and it has been paying a dividend upon that inflated stock and paying the indebtedness incurred for said borrowed money as well as extensions of its plant, and exacted such sums from the people of Malone village for water as would pay, not only for its plant, but would contribute a liberal dividend — something around 9 or 10 per cent. to the stockholders for the money actually invested by them in said plant — and it constructed a reservoir capable of containing considerably less than 2,000,000 gallons, and that upon a peaked sand-knoll near the village of Malone and in a very precarious situation; this reservoir has not the customary spillway needful to

safeguard its embankment in case of flooding by reason of cloud-burst, accidental stoppage of the distributing main below, the sticking of a closed gate, the breaking of the stem or other mechanism of a gate upon the main, or even in case of stoppage (as has actually occurred) of the ten-inch siphon which serves as a waste pipe for surplus water, whether by reason of freezing or clogging, or again in the event of ordinary leakage, so that in any of the events named the sand bank constituting the reservoir wall is liable to instant destruction, which would leave the village with practically no fire protection; that it has an inadequate supply of water to said reservoir, being through a main originally of ten-inch diameter, but, having been in use eighteen years, now undoubtedly much impaired in efficiency, not only on account of the sedimentary deposit regularly found after such a length of service, but more particularly on account of not only the frequent and extreme undulations in the vertical plane, but also the changes of course in the horizontal plane which would tend to increase such deposit, causing deteriorating quality and diminishing quantity of water and greatly impairing the practical efficiency of such pipe, so that the quantity of water that is delivered into the said reservoir is wholly inadequate to the needs of the village; the said village has been unable to obtain sufficient water for sprinkling its streets, and the inhabitants have been unable to obtain sufficient water for sprinkling lawns and for such other purposes as they desired; and about every season said company has required takers not to use the water as rapidly as it would go into its reservoir, and deprived said takers of water to sprinkle streets and lawns, and notwithstanding that it is used much faster in the village than it runs into the reservoir, the said company is engaged in supplying water for mechanical and railroad purposes in said village, and is thereby allowing the inhabitants to be deprived of an adequate supply of water and endangering the fire protection in said village, until the citizens thereof have become disgusted and determined to own their own water supply; that there is no adequate pressure from said company's reservoir for fire protection in that portion of said village above referred to where fire protection is inadequate, and there are many dwellings on higher ground that are substantially unprotected by said water supply; that notwithstanding such facts said company has exacted from Malone village and the people thereof as high as \$28,240.18 per year for water, which

is regarded as an exorbitant sum and charge, and wholly disproportionate to the amount of money actually expended by the stockholders of said company in said water-works and the service supplied; that the said water company, by its arbitrary manner and methods, has caused much friction in said village, and said village and its inhabitants are entirely at the mercy of said private corporation in respect to cost and supply of water for all purposes; that this condition of things would be remedied and improved by the village constructing and owning its own water supply system.

Twelfth.—That said Board of Trustees and said village verily believe from examination and estimates and offers that have been made for the construction of a new works superior to that of the existing company in every way, that such new works can be installed for considerably less than the appropriation, namely, \$150,000 would afford the village and the citizens thereof, not only a sufficiency of extra and superior quality of pure and wholesome water, but an abundance thereof, together with adequate fire protection, with a head on Main street in the business portion of the village of almost 300 feet pressure, at a very reasonable cost, so that in paying therefor and in liquidating the bonds and interest thereon, the village may reduce the rates at present charged by the Malone Water-Works Company about one-third until the said village water-works are paid for, and then the rates can be reduced very materially so that the water rates in said village will be only a comparatively nominal sum.

That the plan or scheme determined upon provides for the payment of proper compensation for any and all damages to persons or property, whether direct or indirect, resulting from acquiring said lands and the execution of said plans is to purchase the same and secure conveyance and release thereof, if the amount can be agreed upon, and if not, then to acquire the same by condemnation proceedings in the form and manner declared by the statute in such case made and provided.

That said village has already acquired, subject to the approval of your Honorable Board, the Gleason springs, so called, and the right to take the water therefrom, and likewise the right to lay pipes and construct a reservoir and other necessary and requisite rights; that the village authorities are willing to acquire by purchase, at a fair price if one can be agreed upon, the system of

water-works of the Malone Water-Works Company, and, so far as practicable, incorporate the same into the proposed municipal system, and negotiations have been had for that purpose, but said company refuses to sell at what your petitioner regards as a reasonable price and said village and your petitioner are unwilling to pay an excessive or extortionate price for the same, and they are not authorized to acquire the same otherwise than by purchase, as provided in said propositions.

Thirteenth.—That no other municipal corporations or other civil divisions of the State are affected by the proposed project, and no other municipal and no municipal or other civil divisions of the State are within the watershed of the proposed source of supply, nor is the source of the supply tributary to nor can the same be made tributary to any other such municipal corporation or civil division of the State or to the inhabitants thereof, and there being none such, the said plans are just and equitable in view of all the present and future necessities for sources of water supply.

Fourteenth.—That your petitioners have intended to get a sheet of the United States Geological Survey of the territory from which the proposed water supply is to be taken, but have been unable to do so for the reason that they are informed by the authorities that no such survey or sheets have been made.

Fifteenth.—That the approximate capacity of the storage reservoir planned for said municipal system is 6,000,000 gallons.

Sixteenth.—The sources of supply are living springs from which a constant flow of pure and wholesome water comes, which will be adequate for all needs of Malone village and will deliver to the village constantly over 1,600,000 gallons per day of twenty-four hours, of pure and wholesome water entirely uncontaminated and which has never been known to fail in abundant supply of water in dry seasons.

Seventeenth.—That the assessed valuation of the real property in said village for the year 1906 was \$2,040,545, and the assessed valuation of personal property in said village for said year was \$245,550, and of franchises \$63,600, and there is no bonded or other indebtedness outstanding against said village, except that voted for such water supply.

Your petitioner therefore prays that your Honorable Commission do approve this application and the maps and profiles, plans and surveys adopted by said village and herewith submitted and presented, and grant a certificate that such works be thus con-

structed and that your petitioner have such other and further relief, either or both, as your Honorable Board may grant.

MALONE VILLAGE,

by

Wm. DEMPSEY,

Vice-President.

MOSES BESETTE,

OEVILLE MOORE,

GEO. A. WILLSON,

B. A. WHITNEY,

E. A. TATRO,

Trustees.

STATE OF NEW YORK, }
COUNTY OF FRANKLIN. } ss.:

William Dempsey, being duly sworn, says that he is vice-president Board of Trustees of Malone village, New York; that he has read the foregoing petition and that the same is true to his own knowledge, except as to the matters therein stated to be alleged upon information and belief, and as to those matters he believes it to be true.

WM. DEMPSEY.

Subscribed and sworn to before me,
this 26th day of June, 1906.

R. McC. MILLER,
Notary Public.

This Board having heretofore adopted a resolution for the preparation of an application to the State Water Supply Commission for its approval of plans, maps and profiles for a municipal water-works system for Malone village, and the Board having employed F. H. Dewart, civil engineer, of St. Albans, Vermont, to prepare such maps and profiles, and the same having been prepared.

It is Resolved, That the application to the State Water Supply Commission for its approval of the proposed municipal water-works system for Malone village, New York, and the maps, plans, profiles and report of F. H. Dewart, civil engineer, of St. Albans, Vermont, be and they are hereby adopted, and the corporation counsel is directed to submit to said State Water Supply Commission such application, maps, plans, profiles and report, and such further maps, plans, profiles, descriptions or papers, as may be necessary to secure its approval of the installation of a municipal water-works system for Malone village aforesaid.

Carried.

STATE OF NEW YORK,
 FRANKLIN COUNTY,
 Village of Malone } ss.:

I, R. McC. Miller, clerk of the village of Malone, N. Y., do certify that I have compared the foregoing with the original resolution of record in this office and that the same is a correct transcript therefrom and of the whole of said original.

Witness my hand and seal at Malone the 26th day of June, 1906.

R. McC. MILLER,
 [L. s.] *Clerk of Malone Village.*

Decisions.

STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
 the VILLAGE OF MALONE, Frank-
 lin County, for Approval of Its
 Plans, Maps, and Profiles of Its
 New Source of Water Supply.

On the 28th day of June, 1906, the village of Malone made application by petition in writing, duly verified June 26, 1906, to this Commission for the approval of its plans, maps, and profiles for a new source of water supply.

The application was accompanied by an exhibit of the maps of the lands to be acquired and the profiles thereof, showing the site and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, plans and surveys and abstract of official reports relating to the same, showing the need of said municipal corporation for a particular source or sources of supply and the reasons therefor.

Said petition was accompanied by a plan or scheme to determine and provide for the payment of compensation for any and all damages to persons or property, whether direct or indirect, which would result from the acquiring of said lands and the execution of said plans, and was also accompanied by proof as to the character and purity of the water supply proposed to be

acquired, as provided by section 3 of chapter 723 of the Laws of 1905, as amended by chapter 415 of the Laws of 1906, and the rules and regulations heretofore made and adopted by this Commission for the proceedings thereunder, as provided by section 2 of the aforesaid acts.

The said petition and the papers accompanying the same were duly filed in the office of the Commission in the city of Albany, N. Y., on the 26th day of June, 1906. The Commission thereupon, pursuant to resolution duly made, caused a public notice to be given that on a day named therein, to wit: On the 2d day of August, 1906, the Commission would meet at the court house in the village of Malone at 10 o'clock in the forenoon of that day, for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State that might be affected by the execution of the plans of the village of Malone for securing a new or additional supply of water.

This Commission, by resolution duly made and adopted, determined that said notice should be printed in "The Malone Palladium" and "The Forum," public newspapers printed and published in the said village of Malone, once a week for two weeks.

Prior to the time fixed for said hearing, objections were made and filed in the office of the Commission at Albany to the project proposed by said application, as follows:

By the Malone Water Works Company, by the county of Franklin, and by Alice M. Wheeler, Putnam W. Hutchins, Frank N. Brill, Worden A. Drake, J. Fred Amsden and others, Owen Kenney, and Cora C. Hutchins.

The application set forth in substance that the village of Malone was a municipal corporation, organized and incorporated under the general Village Law of the State of New York, and was situated within the county of Franklin, having a population of about 6,500. The board of trustees of the village constitute the water board thereof, no separate board ever having been elected or created.

That in December, 1905, propositions were submitted to the voters of said village qualified to vote thereon for the establishment of a municipal system of water works, the propositions being as follows:

"(1) Shall the trustees of Malone village establish a system of water works for supplying Malone village and its inhabitants with water at an expense of not exceeding \$150,000?

"(2) Shall the trustees of Malone village, instead of establishing a new system of water works, acquire the existing system of water works of the Malone Water Works Company, at an expense of not exceeding \$200,000?

"(3) Shall the trustees of Malone village, in case the Malone Water Works Company refuses to sell its water works system to the village at a price not exceeding \$200,000, proceed to establish a system of water works for Malone village and its inhabitants at an expense of not exceeding \$150,000?

"(4) Shall the trustees of Malone village issue bonds to the amount of not exceeding \$200,000, payable in equal, annual installments, the first of which shall be due in five years and the last in thirty years from the date of issue, with interest payable annually, the proceeds of which shall be used in providing a water works system for said village, and provide for the payment of interest and principal of said bonds as they become due?

"(5) Shall the trustees of Malone village be authorized to institute the necessary preliminary measures for the establishment of a permanent sewer system for Malone village, the expense when estimated to be submitted to the voters for their approval?"

Thereafter, a special village election was held in said village on the 12th day of December, 1905, and that said propositions were adopted by the following vote:

"That the total number of votes cast upon the proposition No. 1 was 485.

"That 316 ballots were cast in favor of said proposition.

"That 169 ballots were cast in opposition to said proposition.

"That the total number of votes cast upon the proposition No. 2 was 488.

"That 337 ballots were cast in favor of said proposition.

"That 151 ballots were cast in opposition to said proposition.

"That the total number of votes cast upon the proposition No. 3 was 481.

"That 312 ballots were cast in favor of said proposition.

"That 169 ballots were cast in opposition to said proposition.

"That the total number of votes cast upon the proposition No. 4 was 482.

"That 321 ballots were cast in favor of said proposition.

"That 161 ballots were cast in opposition to said proposition.

"That the total number of votes cast upon the proposition No. 5 was 471.

"That 334 ballots were cast in favor of said proposition.

"That 137 ballots were cast in opposition to said proposition.

"Spoiled ballots, 3.

"Defective ballots, 16."

That thereupon the board of trustees of the village offered to purchase the plant of the Malone Water Works Company and to pay the company therefor the sum of \$200,000, and that the Malone Water Works Company refused to accept said sum, or sell their plant at such price.

Whereupon the board of trustees of the village determined to construct and establish a separate and independent system of village water supply and authorized this application to this Commission.

The application further set forth that substantially no fire protection is furnished in said village to a considerable portion thereof, specifying the southwesterly part of said village, known as Pleasant, Wellington and Rockland streets and western Franklin street, as well as the southerly end of Webster and Academy streets and Shields street.

That for several years a private corporation known as the Malone Water Works Company by gravity system supplied water for domestic purposes to such of the inhabitants of said village as chose to submit to the exactions of said company, to endure the rules and regulations imposed by it and to pay the exorbitant prices asked by the company.

That the fire protection obtained by the said village has been from the hydrants of said Malone Water Works Company under such rules and regulations as said company saw fit to prescribe, and at such prices as it saw fit to ask.

The petition further declared that the Malone Water Works Company incorporated by a special charter (chapter 156 of the Laws of 1857), in which charter it was provided that in case of disagreement between the village and the company with reference to the prices to be paid for water for fire protection, application could be made to the Supreme Court for the appointment of commissioners to determine the same.

That subsequently and prior to this application the water company obtained a repeal of that portion of its charter, and further alleged that the reservoir of the water works company was built in a precarious situation, liable to destruction; that it was too small, the supply of water to it inadequate, being supplied by a

ten inch pipe, the efficiency of which was largely impaired, and that the quantity of water that was delivered to the reservoir was wholly inadequate to the needs of the village.

It further alleged that about every season the company required its consumers to use the water sparingly and deprived the users of water of the right to sprinkle the streets and lawns.

That the company was also engaged in supplying water for mechanical and railroad purposes to the detriment of the inhabitants of the village and thus endangering the fire protection of the village. That the pressure was inadequate for fire protection and that the total amount contributed by Malone village and its inhabitants has been as high as \$28,000 per annum.

The petition further alleged that new works could be installed for considerable less than \$150,000, which when completed would afford the village and its citizens an abundant and superior quality of water with adequate fire protection, and that the village could thus reduce the rates charged by the company about one-third.

The petition further alleged that the plan or scheme determined upon to provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, resulting from acquiring the lands and the execution of the plans, was the purchase of the lands, if the amount could be agreed upon, and if not, then to acquire the same by condemnation proceedings, and that the village had already acquired, subject to the approval of this Commission, the so called Gleason Springs and the right to take water therefrom and to lay pipes and construct a reservoir and other requisite rights.

It further alleged that the village authorities were willing to acquire by purchase at a fair price, if one could be agreed upon, the system of water works of the Malone Water Works Company, and as far as practicable to incorporate the same into the proposed municipal system, but that the village had been unable to agree with the Water Works Company as to the amount to be paid, and that it was not authorized to acquire the same otherwise than by purchase according to the direction of the proposition adopted by the people.

The petition also showed that the assessed valuation of the real property in the village for the year 1906 was over two millions of dollars; that there was no bonded or other indebtedness outstanding against the village.

The Malone Water Works Company in its objections duly verified July 25, 1906, raised the question of the legality of the

village election at which the propositions set forth in the application were adopted, denied every material allegation of the petition, it asserted that the value of its plant was largely in excess of \$200,000, that in addition to the original cost it has expended at least \$190,000, in the betterment and enlargement of the plant and that there was still an outstanding indebtedness of \$41,000, and that it had not paid dividends in excess of five per cent. per annum to its stockholders.

It alleged that the fire protection furnished to the village for all purposes was ample and of sufficient pressure, and except in times of great drought it had not curtailed the use of water for sprinkling and irrigating purposes, and only when the reservoir was being repaired it requested the village officials to cease street sprinkling for a short time, and explained that while its charter was amended in the particulars stated in the petition of the village, the provisions of the general Village Law as amended by chapter 129 of the Laws of 1879 were substituted therefor.

It further alleged that there was no necessity for an additional water system at Malone; that the water the company furnished was of the very best quality of Adirondack spring water free from all contamination or chance of contamination.

That it had supplied the village and its inhabitants to the extent of their wishes and necessities. That while it would be necessary to increase the supply of water in the future to afford complete fire protection, in the event of large fires, and to allow an unlimited use of water by the inhabitants therefor, yet that that necessity would be supplied in the near future for the reason that the company is the owner of sufficient water to more than double the present supply from the same source as those from which the present supply is taken, and have recently instituted proceedings for the condemnation of the further right to take water of and through a pipe twelve inches in diameter and convey the same to its reservoir thus more than doubling the supply of water.

That a judgment has been recovered and entered in the Supreme Court condemning the rights to take such additional supply of water, and commissioners had been appointed to appraise the damages of the only persons who were opposing the taking thereof, and such proceedings were pending.

It set forth that the water supply which the village of Malone intended to use in the construction of its proposed new system is and would be wholly inadequate to afford a sufficient water

supply for the village. That the option of the village to the so called Gleason Springs and water rights only gave the right to take water with an eight inch pipe, and was subservient to other water rights, and that the taking of any considerable quantity of water from these springs would entirely deprive lower riparian owners of their entire supply of water.

That the company had offered to sell its property for \$225,000 to the village or would unite with the village in condemnation proceedings and consent that a judgment of condemnation of its water system be rendered and commissioners be appointed to appraise the value thereof; and that if the applicant should be permitted to construct the new system, there would then be in the village two established competing water systems with great detriment and damage to both parties.

That such new construction would injure and impair the value of the property of the water company, and constitute a breach of good faith on the part of the village.

It alleged that the greatest amount it had ever received for water in any one year was \$21,000, of which about \$2,000 was received for outside use by the railroads and other mechanical purposes.

It also set forth in detail the prices charged for water and alleged that they were reasonable and offered further to reduce the rates in case the village refused to purchase property at the price of \$240,000, or submit the question of value to third parties.

This reduction in rates would be about-one-third of the prevailing prices. That its present system was well equipped with all modern improvements, built under plans and specifications of eminent engineers.

That the construction by the village of a new plant could not take more than one-half of its present business, and the receipts by the village would be insufficient to pay the running expenses of its new plant; that no complaint had ever been made to the company of the kind of service rendered by it, or the quality of the water furnished, and that it would be very much to the detriment of the village and the inhabitants to have a new and competing water system established, thereby imposing upon the taxpayers of the village a heavy burden without benefit over and above the conditions that would exist if the said company would reduce its water rates in accordance with the proposed reduction which it was still willing to do.

The objections of the other objectors showed that they were depending upon the water of the Gleason Spring for domestic use, and for the purpose of watering horses and cattle and agricultural purposes, and that the agreement by which they had given to Mr. Gleason the right to divert the waters of the said spring expressly reserved such use for themselves; that there was no need of a new water system for the reason that the Malone Water Works Company amply supplied the village, and public necessity was denied in each instance.

It was further alleged in these objections that the water from the Gleason Springs was totally insufficient to supply the village of Malone with water for any purpose, and that water of the Gleason Springs was just barely sufficient to supply the needs of the few farms that were situate upon it, and that in dry times in the summer there was a great scarcity of water in the brook.

Upon the day and at the time and place specified in said public notice, the Commission met at the court house in the village of Malone.

Charles A. Burke, John P. Kellas appeared for the village of Malone,

Badger & Cantwell and William C. Breed appeared for the Malone Water Company,

Wells and Moore appeared for the county of Franklin, and

Mears & Cooney appeared for the other objectors.

The Commission thereupon proceeded to and did examine the said maps and profiles and upon the said 2d day of August and the 3d day of August made an examination of the water plant and property of the Malone Water Works Company, and of the proposed lands, water rights and system proposed in the application by the village of Malone, and on the 3d day of August, 1906, after such examinations and inspections had been completed, and the matter had been quite freely discussed in an informal way, the Malone Water Works Company and the village of Malone arrived at an agreement which was embodied in a stipulation and entered upon the minutes of the proceedings before the Commission.

The stipulation in full is as follows:

"It is stipulated and agreed between the Malone Water Company and the village of Malone,

"First: That in the proceedings before the State Water Supply Commission on the application of the village of Malone for the

approval of its plans to acquire a new and additional source of water supply, that the appearances of the respective parties shall be entered and an adjournment shall be taken until the 7th day of September, 1906, at the court house in the village of Malone, N. Y.

“Second: That twenty-five or more citizens of the village of Malone shall make application in writing to the board of trustees of the village, petitioning them to call a special meeting for the purpose of submitting a proposition to the electors of the said village qualified to vote thereon, as to whether or not the village of Malone shall pay the Malone Water Company the sum of two hundred and twenty-five thousand dollars (\$225,000.00) for all the rights, privileges, franchises and property, both real and personal, except money in bank and safe, accounts receivable and evidences thereof, office furniture and fixtures, of the said Malone Water Company, and that the trustees of the village shall thereupon call the said special election at an early date, and that all parties shall use their best endeavors to have the proposition adopted.

“Third: That within a reasonable time from to-day the officers of the Malone Water Company will call a meeting of the stock-holders of said company, for the purpose of obtaining legal authority to accept the offer of the village of Malone, and upon payment to it of two hundred and twenty-five thousand dollars (\$225,000.00) in cash, to be paid to it on the first day of October, 1906, or the first day of January, 1907, as the village may elect, to sell and convey by good and sufficient conveyance, free of all liens and incumbrances, all its right, title and franchises, and its property both real and personal, except as above stated, to the said village of Malone.

“Fourth: That the village of Malone, on such conveyance being made, may then determine whether or not it will take an assignment of the condemnation proceedings instituted by the Malone Water Company, and now pending against Ladd & Smallman, and all the rights flowing therefrom, or whether it will elect to have the said action discontinued; and if the latter, that the Malone Water Company will pay all the costs incurred in the said proceeding up to this day, and that the question of whether or not the attorney for Ladd & Smallman shall be entitled to an allowance on such discontinuance, and if so, the amount thereof, shall be submitted to Mr. Davis of the State Water Supply Commission for his decision and final determination, and that pending all of these

proceedings the said action or proceedings in condemnation shall be adjourned, without prejudice and without costs, until the 7th day of September, 1906.

"Fifth: That the parties to this stipulation waive none of their rights, and the same is made without prejudice to either side, but nevertheless is made by them as public spirited citizens of the village of Malone having at heart the true interest of the village of Malone.

"Sixth: If any dispute arises with regard to the true meaning of the foregoing stipulations, it is hereby stipulated that the same are referred to the State Water Supply Commission for its determination."

This stipulation with the consent of the State Water Supply Commission modified and amended the application to the extent therein set forth, and thereupon the proceedings were adjourned to Friday, September 7, 1906, at the court house in the village of Malone, and further adjourned to October 5, 1906, at the same place, at which latter time and place Mr. Burke and Mr. Kellas appeared for the village of Malone, Mears and Cooney for certain land owners through which the stream from the Gleason Spring flows,

Badger & Cantwell for the Malone Water Works Company, and

Wells and Moore for the county of Franklin, and from the proof taken at this hearing, it appears that a special election was held in the village of Malone on the 21st day of August, 1906, the purpose of which was to vote upon the following propositions:

1. Shall the board of trustees of Malone village acquire for the village the existing system of water works of the Malone Water Works Company at an expense of not exceeding \$225,000?

2. Shall there be raised upon Malone village the sum of \$225,000 for the purpose of paying for the water works system of the Malone Water Works Company?

That the total number of ballots cast for proposition No. 1 at said election was 375, of which 297 were cast in favor of said proposition, and 78 were cast in opposition.

That the total number of votes cast on proposition No. 2 was 365, of which 288 were cast in favor of said proposition, and 77 were cast in opposition thereto.

This special election was held to carry out on the part of the village the stipulation it had made on August 3, 1906, and thereafter the Malone Water Works Company on October 1, 1906, in

consideration of \$225,000 conveyed to the village of Malone all its lands and appurtenances, water and water rights, rights of way, rights of diversion, privileges and easements, and rights acquired by the judgment of condemnation, and all of its contracts for furnishing water to persons and corporations, and all of its rights, privileges, franchises and property, both real and personal, except money in bank and accounts receivable and evidences thereof, books, office furniture, safe and fixtures being all the property of every kind which the said Malone Water Works Company owned, except as above expressly reserved, and was executed in compliance with the stipulation that it had made on its part on August 3, 1906. This conveyance is in the form of a warranty deed, executed by the Malone Water Works Company to Malone village, and is recorded in Franklin county clerk's office October 1, 1906, in liber 128 of deeds at page 280, and Malone village thereupon took possession of the said property and plant, and is now supplying its inhabitants with water for domestic and manufacturing purposes and fire protection therefrom.

The stipulation was fully and completely carried into force and effect, according to its true intent and meaning, with good faith and evidently to the apparent satisfaction of both parties. That action on the part of the village of Malone and the Malone Water Works Company, the Commission suggested and urged. The application of the village of Malone filed in this office June 28, 1906, as modified and amended by the stipulation of August 3, 1906, in so far as it seeks to acquire and take by purchase the lands of the Malone Water Works Company, is therefore approved.

At this point, these proceedings before this Commission should have ended.

Malone village had acquired and established the municipal water system its citizens desired, had voted to buy and obligated themselves to pay for. Its Board of Water Commissioners had faithfully carried into effect the directions of its inhabitants, it now owns and operates its own system.

The village, however, insisted at this hearing that it desired the approval of the plans as originally presented in its application of June 28, 1906, and then amended so as to limit the approval to the acquisition of the Gleason Springs and the construction of a reservoir of the capacity of 6,000,000 gallons.

The proofs offered and received established facts that were provable under the original application, but which up to this

time had not been disclosed other than by such observations as could be made of the plan and lands of the Malone Water Works Company and of the Gleason Spring, stream and proposed site of the new reservoir.

It was proven, relative to the Malone Water Works plant, that the village had at this time acquired and was operating it. This system supplies in the village between 1200 and 1300 half inch taps and about 100 fire hydrants. The water is obtained chiefly from the Horse Brook, a spring brook which empties into the Salmon River. The main intake is about 7 miles from the village, the water being carried through a ten inch pipe following the undulations of the surface to a reservoir which is situate on a pinnacle about a mile and a half from the village, and at an average elevation above the business portion of the village of about two hundred feet. The capacity of this reservoir is 1,600,000 gallons. The supply mains will furnish between 600,000 to 900,000 gallons of water a day, a hundred or more gallons per day for each inhabitant. The distributing pipes in the village are connected with the reservoir by a twelve inch main and there is also a by pass running around one side of the reservoir connecting the conduit from the main intake directly with that from the reservoir, so that the water can be supplied directly to the distributing pipes in the village, without being first discharged into the reservoir. The system was a modern one, free from all sources of contamination, well maintained and of good efficiency. It had withstood the test of several large fires, after which and in times of extreme drought the company had urged its consumers to economize in the use of water for a short time. No question was raised as to the quality of the water supplied.

Relative to the Gleason Springs (four in number) the proof was to the effect that they were situate about a mile and a half from the village at an average elevation of fifty feet above the spillway of the "pinnacle reservoir," and would furnish about 400,000 gallons of pure soft water per day.

The plans contemplated the construction near these springs of a storage reservoir of 6,000,000 gallons which reservoir is to be connected to the village distributing system by a 14 inch pipe. That the installed system is sufficient for the needs of the village to-day, but that it is desirable and probably necessary to take steps to increase both the supply and the reservoir capacity.

Upon the hearing of October 5, 1906, a motion was made to

dismiss the proceeding substantially on the ground that the village of Malone had already acquired an abundant and sufficient supply of water; that the application was no longer justified by public necessity, and that by the adoption of the proposition at the special election held August 21, 1906, to buy the Malone Water Works system and its subsequent purchase, the authority of the village to further proceed was terminated.

The authority that any village can have either to establish a municipal water system, or to acquire an existing system, or to acquire additional rights, is first established by the adoption of a proposition to that effect by its qualified electors submitted to them at a village election.

When that has been done, the village then has the proper direction and power to make its application to this Commission for the approval of its maps and plans. Without this, it has no standing before the Commission.

The adoption of the propositions at the special village election, held on August 21, 1906, superseded the propositions relative to the water system adopted at the village election held December 12, 1905, and the situation is as though propositions Nos. 1, 2 and 3 of December 12, 1905, were amended so as to read \$225,000 in each instead of \$200,000, and the condition stated in proposition No. 3 upon which the application to establish a new system was based, viz.: the refusal of the Malone Water Works Company to sell its plant has never arisen. The company has sold its plant and property to the village.

No proposition has ever been submitted to the qualified electors of the village to acquire the additional water rights, and we are of the opinion that until a proposition to this effect is submitted to and adopted at a village election, the village of Malone is without authority to proceed further before this Commission.

Nor could the approval of the maps and plans of the village of Malone by the State Water Supply Commission in advance of that condition precedent established by the village law be of any possible benefit or advantage to it.

Upon the question of acquiring additional water rights, its qualified electors have not had their day in court.

This application, in so far as it asks for the approval of the maps, plans and profiles submitted to acquire, take or condemn lands for an additional source of water supply, other than those acquired by purchase from the Malone Water Works Company,

is, therefore, rejected entirely. In order, however, to make a reasonable effort to meet the needs of the applicant, permission is hereby granted it to make a new application in lieu thereof.

For the reasons stated it is not necessary at this time to pass upon the objections filed by the several objectors; the pertinency and materiality of these fall with the modification of the application as amended by the stipulation of August 3, 1906.

The State Water Supply Commission, therefore, determines to and does hereby approve of the application of the village of Malone for the approval of its plans, maps and profiles as amended and modified on August 3, 1906, and determines to and hereby does reject entirely its application for the approval of its plans, maps and profiles in so far as it asks for such approval to acquire, take or condemn lands for an additional source of water supply, other than those acquired by purchase on October 1, 1906, from the Malone Water Works Company, and does hereby permit the village of Malone to file another application in lieu of that part of said application that is rejected.

IN WITNESS WHEREOF, The State Water Supply Commission hath caused this determination to be signed by the Commission and caused its official seal to be affixed
(L. S.) hereto and the same with all plans, maps, surveys and other papers relating thereto filed in its office at the City of Albany this 18th day of January, 1907.

HENRY H. PERSONS, *President.*,

CHARLES DAVIS,

JOHN A. SLEICHER,

MILO M. ACKER,

ERNST J. LEDERLE,

State Water Supply Commission.

Order for hearing was made and entered July 13, 1906, appointing the courthouse in the village of Malone as the place and the 2d day of August, 1906, at 10 o'clock in the forenoon, as the time for such hearing. Public notice of such hearing was published in "The Malone Palladium" and "Malone Forum" once a week for two successive weeks. On this hearing Messrs. Charles A. Burke, corporation counsel, and John P. Kellas appeared for Malone village.

Badger & Cantwell and William C. Breed for the Malone Water

Company, Mears & Cooney appeared for certain riparian owners and taxpayers, and Wells & Moore for the county of Franklin. A stipulation was entered into between the village and the Malone Water Company that the question of the said village paying the water company the sum of \$225,000 for its plant should be submitted to the electors of the village. The question was submitted and the electors voted to buy the Malone water works for the sum of \$225,000. The question of whether the village should also purchase the Gleason springs was also submitted. The final hearing took place at Malone on the 5th day of October, 1906. Briefs of the respective parties were filed on the 23d day of October, 1906, and decision was made and filed January 18, 1907.

APPLICATION No. 11.

Made by the village of Holland Patent on the 25th day of August, 1906.

The following documents were filed with the application:

1. Petition.
2. Certificate of water analysis.
3. Statement of W. G. Stone, engineer in charge.
4. Specifications.
5. Agreement of property owners.
6. Plans, maps and profiles.

Petition.

To the State Water Supply Commission,

23 South Pearl Street, Albany, N. Y.:

The petition of the trustees of the village of Holland Patent respectfully shows:

First.—That the village of Holland Patent is without any system of water-works for supplying water for domestic purposes or for fire protection, and that substantially all of the water consumed in said village has been obtained from private wells.

Second.—That on the 26th day of May, 1906, a special election of the village was held for the purpose of voting upon propositions submitted, and that at such election a proposition for favoring the construction of a system of water-works was adopted, and also a proposition authorizing the issue of bonds upon the village to the amount of \$16,000.

Third.—That provision has been made by the trustees of the village for acquiring of the water supply and right of way and land which it will be necessary to acquire in the manner following, to wit: That Martha W. Fuller has offered to convey to the village of Holland Patent for a consideration of \$1 the right to take water from the Beaver creek which flows through her lands; also the right of way for the pipe line used in conveying the water from said stream; and that Herbert A. Pride has offered to convey to the village of Holland Patent, for a consideration of \$100, one acre or more of land; also the right of way for all necessary pipe, which land is to be used for the erection of a suitable standpipe to be used in connection with the system of water-works; that both of said offers are in writing and copies are herewith attached.

Fourth.—That no municipal corporations or other civil divisions of the State will be affected by the proposed water-works.

Fifth.—That it is proposed to take water for said village out of a stream known as "Beaver Creek," which is a spring brook furnishing water of excellent quality, and which has a flow of about 2,000 gallons per minute, and that the village of Holland Patent is a village of about 400 inhabitants and the supply of water is deemed by your petitioners to be adequate in quantity and in quality to surpass any stream in the locality of said village.

Sixth.—That accompanying this application are the maps of the lands to be acquired and profile showing the site of the proposed reservoir or standpipe and of the dam to be constructed; also profile of the aqueduct lines; also plans and survey and report of the engineer relating to the proposed plan, which the said trustees ask to have considered as a part of this application.

Wherefore, your petitioner asks that permission be granted by your Honorable Body to construct a system of water-works for said Village of Holland Patent as proposed.

Dated August 22, 1906.

ELIAS W. JONES,

Village President.

THOS. J. WOLF,

Trustee.

SEWARD T. KANE,

Trustee.

E. WILLARD JONES,

Village Clerk.

Certificate of Water Analysis.

UTICA, N. Y., May 7, 1906.

No. 70. W.

From whom received, Holland Patent, N. Y. When received, May 1, 1906. Title of label, Spring Brook-Bear creek. Source of sample? Color, clear. Taste, agreeable. Smell, slightly weedy.

Data Obtained by Analysis.

	Parts in 1,000,000 grains per U. S. gallon.
Free ammonia .....	.000
Albumenoid ammonia .....	.003
Oxygen required to oxidize organic matter.....	.....
Nitrites	Slight reaction.
Nitrates	Slight reaction.
Chlorine	7.
Total hardness	150.
Permanent hardness .....	.....
Temporary hardness, alkalinity .....	.....
Total solids	5.0153
Mineral matter	3.1493
Organic and volatile matter	1.8660

Conclusions:

Possessing no knowledge of the condition and surroundings of the watershed which yielded this water, I should, judging from the analysis alone, pronounce this a safe and desirable water for dietetic use.

The mineral solids are not too high and consist largely of carbonate of lime. Organically the water is of good quality. I would not hesitate to recommend this water for a public water supply.

Respectfully yours,

G. C. HODGES.

UTICA, N. Y.

The President and Board of Trustees, Holland Patent, N. Y.:

GENTLEMEN.—In compliance with the requirements of chapter 723, Laws of New York, 1905, I herewith present preliminary

report, said report covering the salient features of your proposed municipal water plant, as required by said law. Maps of same are submitted herewith.

The design contemplates a thoroughly efficient system and one that will give you about fifty pounds effective water pressure when using three fire streams, discharging collectively about 750 gallons per minute. While you will rarely use this amount of water, the insurance authorities will be satisfied with not much less, and while like the pistol in Texas, you will seldom need it, when you do want it, you will want it bad. The static head on the pipe system on the general village level will be about 181 feet, corresponding to a pressure of about 77 pounds per square inch. As water is drawn from the pipes, this pressure will decrease in proportion to the amount of water used. The loss of head, due to friction, with a draft of 750 gallons per minute, at the Clarendon Hotel corner, would be about five pounds, reducing the pressure to seventy-two pounds. This loss is trifling and well within safe limits.

In projecting an enterprise of this sort, one of the first questions to be met is that of the benefits to be derived. While I am unable to obtain exact information, if the same ratio exists in your village as in others similarly situated, it is probable the aggregate amount of insurance carried is not far from \$250,000, costing the assured, on the average, about eighty or a gross annual premium of about \$2,000. Usually, the introduction of an approved system of fire protection results in a reduction of insurance premiums of about 33 per cent., or in this case \$660 per annum. The direct saving then in insurance premiums will not be far from \$660 per annum, or the interest, at 5 per cent. on \$13,200. While it is unnecessary to burden this report with dry statistics, investigation will show there is no instance in this or foreign countries where a municipal system of water-works has proven an unprofitable investment. Some private companies have failed, but it has been due to gross mismanagement or political blackmail. In every case municipal plants have paid for themselves within a reasonable time and thenceforth have afforded a handsome revenue. Proof of this can be found in the cases of several villages within a few miles of your own town, notably Lowville, Boonville, Camden, and others. Next comes the general improvement in the general sanitation of your village. While this element is intangible and incapable of measurement by the standard of dollars and cents,

every student of sociology and hygiene knows that the introduction of indoor closets and bathrooms raises both the standards of health and mortality, and inures to the general welfare, physically and morally, of the community. It is an old saying that "cleanliness is next to godliness," and no one better knows this than those who have watched the improvement due to the introduction of modern conveniences in a community. The introduction of hot and cold water in the kitchen, something practically impossible without a water supply under pressure, greatly lightens the labor of the housekeeper. Its use for window cleaning, carriage washing, street and lawn sprinkling, etc., results in great saving in both time and labor. I have not touched upon the subject of the public health, as I have no statistics as to your village. Cesspools and privy vaults certainly contaminate the soil, and the filth therefrom has an insidious way of leaching into adjoining wells. While this may not always result in typhoid conditions, it does result in a general lowering of vitality that renders the individual especially susceptible to the inroads of disease. A pure and abundant water supply is one of the best conservators of the public health.

It is manifestly, commercially impossible in the ordinary country village to so locate piping and hydrants as to include *all* buildings within the 250 feet radius circle of some one hydrant. The map herewith (which shows with substantial accuracy the location and grouping of the various buildings) shows that in this case this desideratum has been practically attained. While desirable to avoid so-called "dead ends" in the pipe system, and while such "dead-ends" can, in larger towns, be almost entirely eliminated, in the case of the sparsely streened smaller communities such design is practically impossible. Commercial conditions intervene and negative the proposition of long stretches of unproductive piping. The most that can be expected in a primary installation is to so design as to afford the greatest good to the greatest number, leaving future individual and group extensions until such time as assured income and accumulated surplus will warrant the investment.

The so-called Beaver brook, which has been selected as the source of supply, seems to combine all the requisites necessary. Its course is such that no dwelling, barn or outhouse can become a source of contamination, its waters are clear, cool and of abundant quantity and its rate of flow, as certified by life-long residents, is but little affected by the seasons. I consider it a

satisfactory source of supply. A sanitary chemical analysis, by Prof. G. C. Hodges, chemist to the Consolidated Water Company of Utica, N. Y., is appended hereto.

In the design of a water plant, the demands of the insurance authorities should be given attention, as in this direction is found the first tangible return from the investment. These authorities require the spacing of hydrants about 500 feet apart (subject of course to such modifications as building locations may suggest), and also that the system (in a village of your size) should be capable of delivering three good fire streams through $1\frac{1}{4}$ inch nozzles. It is hard to conceive of a fire of sufficient magnitude in your village to demand an amount of water in excess of this, and you could not afford to own sufficient hose to greatly exceed it. This demands about 750 gallons per minute, or 45,000 gallons per hour. As your standpipe will hold 200,000 gallons, the stored supply will be ample. The service to be expected is about as follows: Taking the general level of the village as represented by the Clarendon Hotel corner, you can depend upon three $1\frac{1}{4}$ -inch streams thrown to a vertical height of about eighty to eighty-five feet and a horizontal throw of 120 to 130 feet. Fewer streams would be delivered with greater force and to greater heights and distances. As may be inferred from the context, the problem of pipe sizes is governed almost entirely by the water demand for fire protection. So far as purely domestic service is concerned, a 2-inch pipe, under the condition obtaining, would be ample, but pipe sizes must be used to meet the abnormal demand in case of fire. Reference to the maps will show the proposed pipe sizes, location of valves and hydrants and radius of action of same.

In closing I desire to impress upon your Honorable Body the fact that it never pays to temporize in these matters. If you cannot afford to put in a good system, don't put in any. Improperly designed systems are not recognized by the insurance authorities. A system that ignores fire demands simply represent a waste of money. While the country furnishes many instances of mistakes of this sort, the mistake is one that you cannot afford to make. If you put in a system that fully meets all domestic and insurance requirements, you will have something that will be a credit to your village and its projectors, and that will, in a short time, pay for itself and begin to accumulate a surplus. There is no mistake about this. It is the experience of every community that has gone into it. It goes without saying that, as a residential

or manufacturing point, the attractiveness of the village will be greatly enhanced. All of which is respectfully submitted.

W. G. STONE,

Engineer in Charge.

Whereas, the village of Holland Patent desires to obtain from the undersigned a piece of land estimated at about one acre for the purpose of placing a standpipe to be used in connection with water-works proposed to be constructed for said village, and

Whereas, the said village desires to obtain a right of way for the pipe line leading to said standpipe, and also for wastepipe,

Now, therefore, for and in consideration of the sum of \$1 to me in hand paid by the village of Holland Patent, the receipt whereof is hereby acknowledged, I do hereby give to the village of Holland Patent an option to purchase from me a certain tract or parcel of land consisting of one acre of land more or less, and being the northwest corner of a parcel of land purchased by me from Seth E. Barton, which land is bounded on the north-easterly side by the road leading from Holland Patent to Floyd Hill known as the Cotes road, and westerly by the lane leading from said road to the road leading from Holland Patent to Floyd Corners. The boundaries of the said tract on the easterly and southerly sides to be as heretofore agreed upon or marked by myself, George G. Chassell, I. D. Thomson and T. J. Wolf. Said right to purchase the aforesaid land to be exercised within one year from this date, and the consideration therefor to be the sum of \$100 to be paid by said village on the delivery of the deed of said premises.

I agree for the consideration aforesaid to convey to the said village of Holland Patent the same premises by a good and sufficient warranty deed on demand, such premises to be conveyed free and clear of all incumbrances. But it is understood and agreed that the village of Holland Patent is to build and maintain any and all necessary fences for inclosing the said tract of land.

I also agree to convey a right of way for the pipe leading from the village to the standpipe to be erected upon said piece of land as may be laid or located by the engineer; also a right of way for any wastepipes to convey water from the said standpipe, the said village to place two plugs upon the line of pipe leading to said standpipe at such places as I may designate to enable me,

if I so desire, to make connections for supplying water for premises situated along the line of said pipe.

In Witness Whereof, I have hereunto set my hand and affixed my seal this 21st day of May, 1906.

HERBERT A. PRIDE. [SEAL.]

Witness:

SETH W. PRIDE.

Whereas, the village of Holland Patent desires to build a system of water-works for the purpose of supplying water to the village of Holland Patent and its inhabitants,

Now, therefore, in consideration of the sum of \$1 paid by the said village of Holland Patent to me, the receipt whereof is hereby acknowledged, I do hereby agree to convey on demand to the village of Holland Patent the right to build and maintain a dam across Beaver brook on my premises situate easterly from the premises owned by Mrs. Slater, near the village of Holland Patent; also the right to divert and convey from my premises such water as may be necessary for the purposes aforesaid; also the right to enter upon my premises for the purpose of building and maintaining pipes for transmitting water to said village of Holland Patent, along lines which may be laid down by the engineer appointed by said village, the conveyance of said rights to be subject to the following reservation and restriction: That in case the said water-works should be sold by the said village to any individual or corporation, that then all rights to divert the water or to maintain the pipe upon my premises or the dam situate upon my premises, and all rights to enter my premises for any purpose should thereupon cease. The conveyance aforesaid to be also upon condition that the said village supply for the use of my farm such water as may be necessary for the stock kept thereon and for domestic purposes without charge to me, said village to make compensation for any damage sustained by me during the construction of said system of water-works, and to sufficiently protect or guard any ditches constructed to prevent stock from injury.

In Witness Whereof, I have hereunto set my hand and affixed my seal this 22d day of May, 1906.

MARTHA W. FULLER. [SEAL.]

Witness:

E. WILLARD JONES.

Order for hearing to be held at Pride's hall in the village of Holland Patent on the 8th day of September, 1906, was made and entered on the 31st day of August, 1906, and public notice of the hearing published in the Utica Daily Press and Boonville Herald.

On the hearing Messrs. Robinson, Martin & Jones, attorneys-at-law of Utica, N. Y., appeared for the petitioner. No objections to the plan were filed and no other appearances. The following decision on this application was made and filed by the Commission on the 25th day of September, 1906.

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter
of
The application of the VILLAGE OF
HOLLAND PATENT, for the ap-
proval of its plans, maps and pro-
files for a new and additional
source of water supply.

By its petition, dated August 22, 1906, the Village of Holland Patent made application in writing to this Commission for the approval of its plans, maps and profiles for a new and additional source of water supply for said municipality.

The application was accompanied by an exhibit of maps of the lands to be acquired and the profiles thereof showing the sites and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, plans and surveys and abstract of reports relating to the same, showing the need of the village of Holland Patent for a particular source or sources of supply and the reasons therefor.

Said petition was not accompanied by plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which would result from the acquiring of said lands and the execution of said plans, as provided by section 3 of chapter 723 of the Laws of 1905, as amended by chapter 415 of the Laws of 1906, and the rules and regulations heretofore made and adopted by this Commission.

The said petition, with the papers accompanying the same, was filed in the office of the Commission in the city of Albany, N. Y., on the 25th day of August, 1906.

The Commission thereupon caused a public notice to be given that on a day named therein, to wit, the 8th day of September, 1906, the Commission would meet in the village of Holland Patent at 10 o'clock in the forenoon of that day for the purpose of hearing all persons, municipal corporations, or other civil divisions of the State of New York that might be affected by the execution of the plans of the village of Holland Patent for securing a new or additional supply of water.

The Commission, by resolution duly made and adopted, determined that said notice should be published once each in the Boonville Herald and Utica Press, newspapers printed and published in the county of Oneida, N. Y.

That hereunto annexed and forming a part hereof, is a copy of said notice in the form prescribed by the Commission and the affidavits of the publication thereof duly verified on the 10th day of September, 1906.

Prior to the time fixed for said hearing, no objections were made or filed in the office of the Commission at Albany to the project proposed by said application.

Upon the day and at the place specified in said public notice, the Commission proceeded to and did examine the said maps and profiles and heard the proofs and arguments submitted in support of the proposed project.

Messrs. Robinson, Martin & Jones appeared as counsel for the village of Holland Patent.

There were no other appearances.

The proofs and arguments taken and heard upon said hearing were reduced to writing and were filed in the office of the Commission.

The village of Holland Patent is situate in the town of Trenton, Oneida county, N. Y., and is one of the municipal corporations of the State of New York. It was incorporated in 1885 under the General Village Law. It has now a population, as shown by the last enumeration, of three hundred and sixty-two (362), and the assessed valuation of its property is about one hundred thousand dollars (\$100,000).

On the 26th day of May, 1906, a special election of the village was held for the purpose of voting on propositions looking to the

construction of the water system set forth in its petition. At that election sixty-two votes were cast, of which fifty-six were in the affirmative, five in the negative and one blank, and on the proposition submitted at the same election to appropriate sixteen thousand dollars (\$16,000) for the construction of such system, there were sixty-two votes cast, of which fifty-four were in the affirmative, six in the negative and two blank.

In the entire village, there are about ninety qualified electors. The plans which are submitted to the Commission contemplate taking 60,000 gallons of water a day from the Beaver creek, a small stream with a measured flow of one thousand nine hundred and forty-four (1,944) gallons per minute, which rises in the town of Trenton, Oneida county, about two miles north of the village and empties into the Nine Mile creek about three-quarters of a mile from the point at which the village proposes to take the water. On the Beaver creek it is proposed to build a reservoir and to take the water from the reservoir through pipes and pump it to a standpipe on the highest point of land in the vicinity of the village, returning the surplus water to the Beaver creek at a point not to exceed half a mile from that at which it is taken.

The watershed of the Beaver creek is principally wooded lands, the balance being pasture, and there are on it no dwellings or structures. At the present time, there is no municipal water supply of any kind in the village, and no supply except such as is obtained from wells, with the exception of two or three residences which are supplied by water from springs, and the village is entirely without fire protection. An analysis of the waters of Beaver creek has been made and is on file in the office of the Commission from which it appears that such waters are pure and adapted to the needs and necessities of the village of Holland Patent. It, therefore, affirmatively appears that this application is justified by public necessity.

The Nine Mile creek, into which the Beaver creek flows, empties into the Mohawk river and between the head waters of the Beaver creek and the point on the Mohawk where the Nine Mile creek empties, there are no factories or mills operated by water power. In all this distance there is but one mill, situated at Stittsville, and this is operated by steam. No municipality or civil division of the State is now taking water from the Beaver creek, and no municipality or other civil division of the State,

or the inhabitants thereof, will be affected by the proposed plan.

The plans proposed, therefore, appear to be just and equitable to other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

The application filed with the State Water Supply Commission does not contain a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of the lands and the execution of the plans. It is silent in every particular with respect to this requirement of the statute.

The proofs, however, show that the village of Holland Patent has obtained options upon all the land that will be required to be acquired or taken for the construction of its proposed water supply system; that in this application there is no possibility of indirect damages to persons or property resulting from the execution of the proposed plans, and that the plan or scheme presented by the proofs given on the hearing for compensation for direct damages, if any, is twofold.

First.—By mutual agreement, if possible.

Second.—By condemnation, to both of which plans no objection can be sustained; they have long been recognized as fair and equitable provisions for the determination of such damages.

This application in this respect is therefore at this time and in this instance permitted to be and is modified so as to conform to the proofs taken on the public hearing.

The State Water Supply Commission, therefore, determines:

I. That the plans proposed by the village of Holland Patent are justified by public necessity.

II. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

III. That said plans, as hereby modified; make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

The State Water Supply Commission does hereby approve the maps of the lands to be acquired by the village of Holland Patent

for a new or additional source of water supply and the profiles thereof, showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the waters when impounded, plans, surveys, and abstract of official reports relating to the same, and the plan or scheme as modified to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans.

IN WITNESS WHEREOF, the State Water Supply Commission hath caused this determination and approval to be signed by the Commission and caused its official [L. S.] seal to be affixed hereto, and the same with all plans, maps, surveys, and other papers relating thereto filed in the office at the city of Albany this 25th day of September, 1906.

HENRY H. PARSONS,
CHARLES DAVIS,
JOHN A. SLEICHER,
WALLACE C. JOHNSON,
MILO M. ACKER,
ERNST J. LEDERLE,
State Water Supply Commission.

Notice of Hearing and Affidavits of Publication.

Public Notice.—Notice is hereby given that, pursuant to section 3 of chapter 723 of the Laws of 1905, the State Water Supply Commission will meet at Pride's hall in the village of Holland Patent, on the 8th day of September, 1906, at 10 o'clock in the forenoon of that day, for the purpose of hearing all persons, municipal corporations or other civil divisions of the State of New York that may be affected by the execution of the plans of the village of Holland Patent for securing a new and additional supply of water, plans for which have been filed with the New York State Water Supply Commission at its office, No. 23 South Pearl street, Albany, N. Y., where the same are open for public inspection; and for the purpose of determining whether said plans are justified by public necessity and whether the same are just and equitable to the other municipalities and civil divisions of the State of New York and to the inhabitants thereof affected

thereby, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution thereof.

The execution of such plans will affect lands situate in the county of Oneida; will also affect the flow of water in streams flowing in or through said county of Oneida, the riparian rights of said stream, and also the water rights of said streams.

All persons, municipal corporations and other civil divisions of the State of New York who have objection to the execution of said plans, in order to be heard thereon, must file such objection thereto in writing in the office of the State Water Supply Commission in the city of Albany, N. Y., on or before the 5th day of September, 1906. Every objection so filed must particularly specify the grounds thereof.

No person, municipal corporation, or local authority can be heard in opposition thereto except on objections so filed.

Dated, ALBANY, N. Y., August 31, 1906.

HENRY H. PERSONS,

President.

JOHN A. SLEICHER,
WALLACE C. JOHNSON,
CHARLES DAVIS,
MILO M. ACKER,
ERNEST J. LEDERLE,

State Water Supply Commission.

STATE OF NEW YORK, } ss.:
ONEIDA COUNTY.

FRED J. GRAFF, being duly sworn, saith that he is one of the principal clerks of the Utica Daily Press, a newspaper printed and published in the city of Utica, county and State aforesaid; and that an advertisement, of which the annexed is a copy (cut from the columns of said paper), has been regularly published in said paper for one time on the fourth day of September in the year of our Lord one thousand nine hundred and six.

FRED J. GRAFF.

Sworn to before me, this 10th
day of September, 1906.

D. VAUGHAN ELY,
Notary Public.

STATE OF NEW YORK, } ss.:
ONEIDA COUNTY.

G. A. WILLARD, being duly sworn, says he is the editor and publisher of The Boonville Herald, a weekly newspaper printed and published in the village of Boonville, county and State aforesaid; and that an advertisement, of which the annexed is a copy (cut from the columns of said paper), has been published in said paper, one week on the sixth day of September in the year of our Lord, nineteen hundred and six.

G. A. WILLARD.

Sworn to before me, this 10th
day of September, 1906.

HELEN T. CAVANAGH,
Notary Public.

APPLICATION No. 12.

Made by the village of Brewster, Putnam county, on the 12th day of October, 1906.

The following documents were filed with the application:

1. Petition.
2. Statement of engineer with estimate of cost.
3. Plans, maps and profiles.

Claim made that under chapter 726 of the Laws of 1905, the village of Brewster has the right to take water from the Croton river, or its tributaries, in quantities proportionate to the amount used per capita by the city of New York at a compensation to be agreed upon, or fixed by the Supreme Court of the State.

Order for hearing to be held at the town hall in Brewster on the 24th day of October, 1906, made and entered by the Commission on the 12th day of October and public notice of such hearing published in the Brewster Standard. On the hearing Mr. Abram J. Miller appeared as attorney for petitioner, and the city of New York which had filed objections to the petitioner taking water from the Croton river, or its tributaries, appeared by William B. Ellison, corporation counsel. Copy of objections is given herewith. Hearing adjourned to Nov. 9, 1906, at same place, when witnesses were sworn; evidence taken, counsel heard and hearing adjourned for submission of briefs.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the VILLAGE OF BREWSTER, Put-
nam county, New York, for ap-
proval of its maps and profiles of
its proposed sources of water sup-
ply.

The village of Brewster alleges:

First.—That the village of Brewster is a municipal corpora-
tion, organized and incorporated under the General Laws of the
State of New York, being chapter 291 of the Laws of 1870, as
amended.

That said village is situate within the county of Putnam, in
said State of New York.

That the population of said village is upwards of 1,200.

That William A. Ferris is the duly elected, qualified and acting
president of said village, and Emerson W. Addis, Levi A. Shove,
C. Ralph Diehl and John H. McQuay are the duly elected, qual-
ified and acting trustees of said village, and the said president and
trustees comprise the Water Board of said village, no separate
Water Board ever having been adopted.

That on August 8, 1905, at a regular meeting of the board of
trustees of the said village it was voted that a special election of
the taxpayers be called on August 22, 1905, to vote upon the fol-
lowing proposition:

“ Shall a system of water works for supplying the village of
Brewster and its inhabitants with water be established at an ex-
pense not exceeding seventy-five thousand dollars?”

Thereupon the said Board of Trustees called a special election
for submitting said proposition, which election was held on the
22d day of August, 1905, and said proposition was duly adopted
by a vote of sixty-seven ballots cast for, and twenty-four ballots
against the same.

That on September 19, 1906, an informal meeting of the tax-
payers of the village of Brewster was held for the purpose of
hearing a proposition for water as presented by Civil Engineer
T. H. McKenzie, and at said meeting the following resolution was
adopted:

"That it is the sense of this meeting that the trustees be requested to proceed along the general lines laid down in Mr. McKenzie's report to install a water supply for this village as speedily and economically as possible."

That at a special meeting of the Board of Trustees of the said village, held on September 21, 1906, the resolution adopted at the meeting of the taxpayers, held on September 19, 1906, was presented, and upon motion it was voted that Mr. Addis be empowered to communicate with Mr. McKenzie in regard to preparing plans, etc., for water, in compliance with said resolution.

Second.—That accompanying this petition, and made a part thereof, as an exhibit, are maps and a profile showing the main pipe lines and distribution system, and a profile of the main pipe line from Borden's Condensed Milk Company's property to the reservoir on property of Mrs. Alice Yale; also a map showing the pipe lines, springs, reservoir and well owned by Mrs. Alice Yale, which the village proposes to acquire.

Third.—That accompanying this petition, and made a part thereof as an exhibit, are said maps and profiles and the following abstract of the official report of T. H. McKenzie, civil engineer, of Hartford, Conn., employed by said Board of Trustees to make an examination and report, to wit:

"As to the source and method of water supply, I recommend the purchase of the small water-works plant now partly supplying the village for domestic uses and owned by Mrs. Alice Yale. The sources of water supply for said works and the distribution system and pipes are shown on the accompanying plans. For a supplementary supply, I have arranged with Mr. Eno, the superintendent of Borden's Condensed Milk Company's factory, that the village may place in the factory of the milk company, in place of a low pressure tank pump now there and which they do not need, a high pressure pump, proportioned to lift 500 gallons per minute 240 feet high to the reservoir on Mrs. Yale's hill. The Borden Milk Company will agree to furnish power and operate the pump for a reasonable price whenever it may be needed. I have investigated the matter of providing for future growth and increased uses of water beyond what can be obtained from Mrs. Yale's land. The additional supply can be obtained by either excavating a filter gallery on the land owned by the Borden Milk Company on the westerly side of the river north of Main street, or by building artificial sand filters on the same land and taking

the water on to the filter beds from the Milk Shop pond just above the dam and flowing it by gravity on to the sand filter beds, and building a clear water well or reservoir at the southerly end of the filter beds into which the filtered water would be gathered and pumped from as occasion required.

"As to the rights of the village to take water from the Croton river or its tributaries, the act under which the city of New York is authorized to take water in Putnam county provides that any incorporated village or water company may take water from the Croton river or its tributaries in quantities proportionate to the amount used per capita by the city of New York, and if the Board of Estimate and Apportionment of the city of New York and the parties diverting the water cannot agree as to the price to be paid to the city of New York, the Supreme Court may fix the compensation."

The above provision as to the taking of the water from the supply of the city of New York is found in chapter 726 of the Laws of 1905.

That the need of said village for a water supply consists in part in the fact that there is no adequate fire protection furnished said village and its inhabitants, and no adequate water supply for domestic uses.

Fourth.—The village authorities are willing to acquire by purchase at a fair price if same can be agreed upon, the small water plant now supplying a portion of the village, and so far as practicable incorporate the same into the proposed municipal system.

The newspaper published in Brewster is "The Brewster Standard."

Fifth.—There are no other municipal corporations or other civil divisions of the State affected by the proposed project and no such other municipal corporation or civil division of the State, or inhabitants thereof, are within the watershed of the proposed sources of supply, nor are the sources of supply tributary to, nor can the same be made tributary to any such other municipal corporation or civil division of the State, or to the inhabitants thereof, except the city of New York, and therefore the said plans are just and equitable in view of all the present and future necessities for sources of water supply.

Sixth.—The approximate capacity of the existing and proposed distributing reservoirs will be about 300,000 gallons.

The assessed value of the property within said municipality is about \$1,000,000, and there is no bonded or other indebtedness outstanding.

Your petitioner therefore prays that your honorable commission do approve this application and the maps and profiles, plans and surveys herewith submitted and presented.

THE VILLAGE OF BREWSTER,

Wm. A. FERRIS,

President,

EMERSON W. ADDIS,

Trustee,

J. H. McQUAY,

Trustee.

STATE OF NEW YORK, }
COUNTY OF PUTNAM, }ss.:

William A. Ferris, being duly sworn, says that he is president of the village of Brewster, Putnam county, New York; that the foregoing petition is true to his own knowledge except the matters therein stated to be alleged on information and belief and as to those matters he believes it to be true.

WM. A. FERRIS,

Subscribed and sworn to before me }
this 11th day of October, 1906. }

ELIZABETH F. MORGAN,

Notary Public, Putnam County, New York.

Estimated cost of water works for Brewster, N. Y.:

5,900 feet of 8-inch pipe laid, at \$1.20.....	\$7,080 00
6,300 feet of 6-inch pipe laid, at 86c.....	5,676 00
8,060 feet of 4-inch pipe laid, at 58c.....	4,674 80
8 tons special castings, at \$55.....	440 00
53 hydrants set with 4-inch connecting pipes, at \$45.	2,385 00
2,500 linear feet of rock in trenches, at \$1.....	2,500 00
6 8-inch gates and boxes set, at \$22.....	132 00
12 6-inch gates and boxes set, at \$16.....	192 00
17 4-inch gates and boxes set at \$10.....	170 00
1 well 25 feet diameter at foot of hill on Mrs. Yale's land, and further development of springs and water sources on hill above reservoir.....	2,200 00

Pumping machinery and buildings and new pump and appurtenances at milk shop	\$6,000 00
Reservoir 45 feet in diameter on Mrs. Yale's hill....	1,700 00
Expense of State Water Supply Commission.....	200 00
Purchase price of Mrs. Yale's water-works.....	15,000 00
Legal and clerical services and incidentals.....	1,650 20
	<hr/>
	\$50,000 00
	<hr/>

Respectfully submitted,

T. H. McKENZIE, C. E.

OBJECTIONS, CITY OF NEW YORK.
BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the VILLAGE OF BREWSTER, Put-
nam County, New York, for ap-
proval of its maps and profiles of
its proposed sources of water
supply.

The city of New York objects to the project proposed by the application of the village of Brewster in the county of Putnam and State of New York to the State Water Supply Commission for approval of its plans and profiles of its proposed sources of water supply as shown in the said petition or application and the maps and profiles therein referred to, on the following grounds:

First.—The city of New York as a municipal corporation has, pursuant to law, acquired and now owns the right to take, convey to the city of New York, and use a large part of its water supply from the springs, brooks and streams in the vicinity of the village of Brewster, which rights would be illegally and wrongfully interfered with and destroyed if the village of Brewster should take the action proposed.

Second.—The city of New York is the owner of large tracts of land in the vicinity of the said village which are flooded with water and form reservoirs, which reservoirs and the water therein are owned by the city of New York and from which is taken a

large part of its water supply, and is also the riparian owner of large quantities of land abutting on the streams, reservoirs and brooks in the vicinity of the village of Brewster. Its property rights, interests and privileges as such owner would be illegally interfered with, destroyed or rendered less valuable by the action proposed by the said village of Brewster.

Third: The city of New York has expended and is expending large sums of money in order to secure and maintain its said water supply in the vicinity of the said village and has become the owner of large property interests thereby which would be illegally and without due process of law and in violation of the Constitution of the State of New York and of the United States destroyed and taken away without due compensation and without the means of obtaining due compensation if the proposed acts of the village of Brewster should be done and performed.

Fourth: The village of Brewster is without adequate pecuniary responsibility to compensate the city of New York for the damage which it would do to the said city if it should carry out and perform the acts proposed.

Fifth: The plans proposed by the said village do not make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

Sixth: The plans proposed are not justified by public necessity but other plans are or may be provided by which the said village may obtain an additional supply of water, if the same is needed, without causing the great loss and damage to the city of New York that would be caused if the present plans were carried out.

Seventh: The plans proposed are not just and equitable to the city of New York and the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

Eighth: The present sources of water supply of the city of New York are already inadequate, and the proposed drafts therefrom would endanger the health and safety of the inhabitants of the city of New York and would be a serious menace to life, business and property.

Ninth: The city of New York also objects in that the petition and plans are defective in many respects and among others in the following:

That the location and dimensions of the filter beds proposed are not properly or sufficiently shown on said maps and profiles;

That the amount of water to be taken is not indicated;

That the capacity of the existing plant to be acquired is not stated or shown, nor is it shown that the said village has the power to carry out the project contemplated.

All of which are respectfully submitted.

THE CITY OF NEW YORK,

By G. L. STERLING,
Acting Corporation Counsel.

NEW YORK, October 23, 1906.

APPLICATION No. 13,

Made by the VILLAGE OF BERGEN, Genesee county, on the 18th day of October, 1906.

The following documents were filed with the application:

1. Petition.
2. Analyses of water.
3. Report of George S. Pierson, hydraulic and sanitary engineer.
4. Plans, maps and profiles.

Petition.

To the State Water Supply Commission, Albany, New York:

The petition of the Board of Trustees of the village of Bergen, Genesee county, New York, respectfully shows:

1. That the village of Bergen was incorporated under the general law and is now operating under the village law, and has no separate Board of Water Commissioners.
2. That the village of Bergen is without any system of water-works for supplying water for domestic purposes or for fire protection, and that substantially all of the water consumed in said village has been obtained from private wells.
3. That on the 24th day of April, 1906, a special election of the village was held for the purpose of voting upon a proposition submitted, and that at such election a proposition for favoring the establishment of a system of water-works for supplying the village and its inhabitants with water and authorizing the issue of bonds

by said village to the amount of twenty thousand (\$20,000) dollars for such purpose was adopted.

4. That provision has been made by the trustees of the village for acquiring of the water supply and right of way and land which it will be necessary to acquire in the manner following, to wit:

That George E. Parish has offered to convey to the village of Bergen for the consideration of one hundred (\$100) dollars, the premises described as Parcel "A" on the plans hereinafter referred to and upon which land the proposed water-works and reservoir are to be erected, and upon which a portion of the wells, water supply and water are to be located, and that Elizabeth J. Kewin has conveyed to Frank D. Wood, in trust for the village of Bergen, Parcel "B" referred to on said plans in consideration of the sum of fifty (\$50) dollars, which has been paid to her, and upon which land one or more wells are proposed to be located, and that Minnie R. Betteridge has conveyed to Frank D. Wood, in trust for the village of Bergen, Parcel "C" referred to on said plans in consideration of the sum of fifty (\$50) dollars, which has been paid to her and upon which land and upon Parcels "A" and "B" the mains and distributing pipes are proposed to be located, and that no other private property will be required for the construction and operation of said system of water-works.

5. That no municipal corporations or other civil divisions of the State will be affected by the proposed water-works.

6. That it is proposed to take water for said village from wells on Parcels "A" and "B," which have been drilled to an average depth of forty feet, thirty feet in the rock, and a test of capacity shows no lowering under continuing pumping at the rate of seventy gallons per minute from one of said wells, and that a fire engine test of 250 gallons per minute or 360,000 gallons per day showed only two and one-half feet drop of water line and no drop in another well fifty feet distant therefrom; that said water is of excellent quality, and has been analyzed at the University of Buffalo and the Rochester University, New York, and is shown to be free from organic contamination; that the village of Bergen is a village of about 619 inhabitants, and the supply of water is deemed by your petitioners to be adequate in quantity and quality to supply said village and its inhabitants with water for domestic and fire and other purposes.

7. That accompanying this application are the map of the lands to be acquired, with description of the same and profile

showing the site of the proposed reservoir or standpipe to be constructed, also profile of mains and distributing pipes and plans and survey and a report of the engineer, George S. Pierson, relating to the proposed plan and a sheet of the United States Geological survey showing the location of the territory to be served, and the territory to be acquired, which the said trustees ask to have considered as a part of this application.

WHEREFORE, your petitioners ask that permission be granted by your Honorable Board to construct a system of water-works for said village of Bergen as proposed.

Dated, October 16, 1906.

FRANK D. WOOD,
Village President,
C. E. EDGEERTON,
Trustee,
MYRON E. SICKELS,
Trustee.

HOLDEN C. MILLER,
Village Clerk.

Order for hearing to be held in the Assembly room of the Firemen's Building, in the village of Bergen, on the 30th day of October, 1906, made and entered by the Commission on the 20th day of October, 1906, and public notice of same published in the Bergen Leader for one week. On the hearing the petitioner was represented by Mr. Frank S. Wood, attorney-at-law, of Batavia. No objections to plans were filed, and no other appearances.

The Commission made and filed the following decision on this application on the 8th day of November, 1906.

Decision.

STATE WATER SUPPLY COMMISSION.

In the Matter
of
The Petition of the VILLAGE OF BER-
GEN for a new and additional sup-
ply of water.

The village of Bergen by its officers, on the 18th day of October, 1906, filed with the State Water Supply Commission its petition for a new and additional source of water supply.

The petition was accompanied with a map of the village, showing the location of the streets, the streets in which water mains and distributing pipes are proposed to be laid — the lands proposed to be acquired and the location of the proposed wells, standpipes and pumping station, together with the report of George S. Pierson, a hydraulic and sanitary engineer, showing the necessity of the proposed location of its wells in order to obtain a sufficient and proper supply of water for this village.

On the 20th day of October, 1906, the Commission fixed the 30th day of October, 1906, as the time, and the Assembly room, in the Firemen's hall, in the village of Bergen, Genesee county, N. Y., as the place for hearing all persons, municipal corporations or other civil divisions of the State that might be affected by this application.

It is also ordered that a notice of such hearing be published in the Bergen Leader, a newspaper published in that village, for one week, and that all persons, municipal corporations, or civil divisions of the State objecting thereto should file such objections with the Commission on or before the 29th day of October, 1906.

The Commission caused to be published in the Bergen Leader for one week the following notice, to wit:

"Public Notice."

"Notice is hereby given that, pursuant to section 3 of chapter 723 of the Laws of 1905, the

"State Water Supply Commission will meet at Assembly room, in the Firemen's hall, in the village of Bergen, in the county of Genesee, N. Y., on the 30th day of October, 1906, at 10 o'clock in the forenoon of that day for the purpose of hearing all persons, municipal corporations or other civil divisions of the State of New York that may be affected by the execution of the plans of the village of Bergen for securing a new and additional supply of water, plans for which have been filed with the New York State Water Supply Commission, at its office, No. 23 South Pearl street, Albany, N. Y., where the same are open for public inspection; and for the purpose of determining whether said plans are justified by public necessity and whether the same are just and equitable to the other municipalities and civil divisions of the State of New York and to the inhabitants thereof affected thereby, and whether said plans make fair and equitable provisions for the

determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution thereof.

"The execution of such plans will affect lands situate in the county of Genesee, will also affect the flow of water in streams flowing in or through said county of Genesee, the riparian rights on said streams, and also the water rights of said streams.

"All persons, municipal corporations and other civil divisions of the State of New York who have objection to the execution of said plans, in order to be heard thereon, must file such objections thereto in writing in the office of the State Water Supply Commission in the city of Albany, N. Y., on or before the 29th day of October, 1906, or with the Commission at the village of Bergen before said hearing. Every objection so filed must particularly specify the grounds thereof.

"No person, municipal corporation or local authority can be heard in opposition thereto, except on objections so filed.

"Dated, ALBANY, N. Y., Oct. 20, 1906.

"H. H. PERSONS,
"WALLACE C. JOHNSON,
"MILO M. ACKER,
"*State Water Supply Commission.*"

On the 30th day of October, 1906, the Commission met at the Assembly room in the Firemen's hall in the village of Bergen for the purpose of hearing all parties who might appear for or against the proposed proposition.

Frank S. Wood appeared for the petitioner.

Frank D. Wood, president of the village; C. E. Edgerton and Myron E. Sickels, trustees, also appeared for the village, and filed proof of the publication in the Bergen Leader of the notice of the hearing.

The Commission, together with the attorney for the village, the village officers and George S. Pierson, inspected the location of the wells, proposed pumping station and proposed standpipe and also the location of the proposed water mains and fire hydrants, and then proceeded at the place named to hear the evidence given in favor of the petitioner.

The village of Bergen is situated on a level tract of land in Genesee county, with the land at the south rising gradually to a

height of 100 feet or more above the village. It has a population of 600 people and an assessed valuation of \$333,000. At present it has no water-works and no fire protection, except some small cisterns and a hand fire engine. During the past few years there have been two serious fires which did great damage to the business portion of the village.

This village is conveniently located for men who do business in the city of Rochester and is practically a village of homes. A careful investigation was made by George S. Pierson, engineer for the village, with a view of obtaining a gravity system of water-works, but it was found impossible on account of the high elevation of the village and the distance which water would have to be brought. Tests were finally made for obtaining water from driven wells. Four wells were put down and tests made of the capacity of these wells and it was found that any one of the four would produce sufficient quantities of water to supply the village for a number of years to come without appreciably affecting the other wells. The plan proposed by the village and its engineer is to erect a standpipe on an elevation of land about sixty feet above the village and with a pumping station to force the water to a height of about seventy-five feet in the standpipe. The proof shows that these wells and this elevation of the standpipe would afford an abundance of water for the village for all domestic purposes and also afford an ample supply for fire protection with a pressure of fifty-five to sixty pounds to the square inch, which can be raised by using a force pump to 100 to 125 pounds per square inch. On account of the nearness of power generated in Niagara Falls the plan is to run the pumps by electricity from some of the power plants at Niagara Falls. The village has already entered into contracts by which they can purchase all lands necessary for their use for \$200, and thus providing for the payment of all damages to all persons or property that may possibly arise by reason of establishing this water plant.

The proof also shows that no other municipality or civil division of the State will be affected by the execution of the proposed plans. Taking the water from driven wells from lands held in trust for the village no damage of any nature will be done to any person or property or to any other civil division of the State.

The proposition has been agitated by the village and an election called and a vote taken upon the question. This election resulted in a large majority voting in favor of the plan which is to

cost about twenty thousand dollars (\$20,000). This amount the village is abundantly able to pay for water for domestic purposes and fire protection, without being a burden upon any residents or taxpayers.

The necessity of a proper water plant in so thriving and prosperous a village as Bergen was clearly established by the proof given at the hearing. It also clearly appears that no other municipality or civil division of the State would be affected by this water plant and that the village has made proper provision for the payment of any and all damages that would occur to any person by reason of establishing this water system.

The evidence taken in these proceedings has been filed in the office of the Commission.

The Commission, therefore, finds and determines that the plans proposed by the village of Bergen for a new and additional source of water supply are:

First. — Justified by public necessity.

Second. — That such plans are just and equitable to other municipal divisions of the State affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

Third. — That the plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of such plans.

The application of the village of Bergen for a new and additional source of water is hereby approved.

Witness our hands and the official seal of the State Water Supply Commission at the city of Albany this 8th day of November, 1906.

HENRY H. PERSONS, *Prest.*
MILO M. ACKER,
WALLACE C. JOHNSON,
CHARLES DAVIS,
ERNST J. LEDERLE,
JOHN A. SLEICHER,
State Water Supply Commissioners.

APPLICATION No. 14.

Made by the CITY OF GLOVERSVILLE on the 27th day of November, 1906.

The following documents were filed with the application:

1. Petition.

2. Plans, maps and profiles.

3. Topographical map issued by the U. S. Geological Survey and marked to show the territory to be served by the new water supply, the territory to be acquired and the water-shed.

Order for hearing to be held at the Common Council Chamber in the city of Gloversville on the 15th day of December, 1906, at 10 o'clock in the forenoon, was made and entered on the 27th day of November, 1906, and for the publication of the notice of the hearing once a week for two successive weeks in the Gloversville Daily Leader and Gloversville Morning Herald. The order further provided that objections, if any, must be filed in the office of the Commission in Albany on or before the 14th day of December, 1906.

Objections were filed as follows:

1. By Tallmadge L. Parsons on the following grounds:

First.—That the execution of the plans was not justified by public necessity.

Second.—That they do not make fair and equitable provision for the determination and payment of damages, direct and indirect, to persons and property.

Third.—That the stream proposed to be taken is the only running water and only drinking place for stock in the pasture of objector and that the taking of the same would result in irreparable damage to the objector.

2. By Ernst Ruff on following grounds:

First.—That the plans do not make fair and equitable provisions for the determination and payment of damages to persons and property, both direct and indirect.

Second.—That the same are not justified by public necessity.

Third.—That the stream proposed to be taken is barely sufficient for the agricultural necessities of the objector's farm, and if taken as proposed, irreparable damage would be done him.

3. By William M. White on following grounds:

First.—That if the proposed plan is executed and the stream flowing through the sixty-acre farm of the objector is diverted it

will prevent the maintaining of farm stock on the farm now used for dairy purposes exclusively.

Second.—That the compensation for said lands provided in the petition is inadequate and insufficient.

Third.—That the plans are not justified by public necessity and are not just to the inhabitants of the political division affected.

4. By James H. Washburn on following grounds:

First.—That the municipality, in case the prayer of the petition is granted, will so divert the water flowing through the land of the objector as to prevent the maintenance of farm stock now kept on his 160-acre farm, used exclusively as a dairy farm, which is watered solely by the stream in question.

Second.—That the compensation for said lands provided in the petition is inadequate and insufficient to cover the value of damages sustained by the taking of said water by said corporation.

Third.—That the plans proposed are not justified by public necessity and are not just to the inhabitants of the political division affected, consideration being given to their present and future necessities for sources of water supply.

Petition.

In the Matter
of

The application of the Board of Water Commissioners of the CITY OF GLOVERSVILLE, N. Y., for permission to obtain the right, either by purchase or condemnation, to adopt, appropriate, divert and use the waters of Port creek, situate in the town of Johnstown, county of Fulton, N. Y., and certain lands in connection therewith.

To the State Water Supply Commission of the State of New York:

First.—That the city of Gloversville is a municipal corporation organized under chapter 53 of the Laws of 1900, as amended by

chapter 275 of the Laws of 1899, and acts amendatory and supplementary thereto; that your petitioner is one of the departments of said city of Gloversville, created by said acts, having charge of the water system of said municipality; that said Board of Water Commissioners, by virtue of said acts, has the entire charge and control of the municipal water system of said city; that incident to the powers of said Board of Water Commissioners it has the right and power, and it is its duty to examine into and adopt such plans as in its opinion may be most feasible for procuring additional supplies of water for use of said city, and for that purpose it has the power, in the name of said city of Gloversville, to contract for and acquire by purchase or condemnation, all lands, streams, water, water rights or other property, real or personal, or rights therein, situate at any place within the county of Fulton or any adjoining county, which may be required for that purpose; and also the right to lay, relay and maintain pipes through the lands and to conduct, detain or divert water or streams of water, which may be required for that purpose, with or without taking the fee of the land through which pipes are laid, or over which such streams of water flow, and to contract for the execution of the work or any part thereof, or the supply of any necessary material; and the commissioners and their servants and agents are authorized to enter upon any lands, streams or water for the purpose of making surveys and to agree with the owner of any such property or right, which may be deemed necessary for the purposes of this act, as to the amount of compensation to be paid such owner.

Second.—It is the purpose of your petitioner to obtain, in the name of the city of Gloversville, in fee, either by purchase or condemnation, fifteen (15) feet on either side of the line marked in red ink on the map filed herein, "Proposed Conduit Line;" also the absolute right to appropriate, divert, control and use the waters of Port creek, in the town of Johnstown, county of Fulton, N. Y., from the point marked on said map, "Proposed Intake," to the point where the same enters Phelp's Creek.

Third.—The city of Gloversville has a municipal water system under the control of the Board of Water Commissioners by which it supplies the inhabitants of the city of Gloversville with water for drinking and other domestic purposes; that as a necessary part of said water system it has various storage reservoirs located

in the hill country in the vicinity of Gloversville, and pipe lines running therefrom to the city of Gloversville. There are no other sources of water supply to the city of Gloversville, except the Kingsboro Water-Works Company, a private corporation which formerly supplied the village of Kingsboro before it was incorporated as a part of the city of Gloversville. This company owns two small reservoirs in the vicinity of the city of Gloversville and supplies a portion of that part of the city formerly the village of Kingsboro; that the proposed extension of the water system of the city of Gloversville does not in any way interfere with or take from or abridge or otherwise effect any of the rights of the Kingsboro Water-Works Company, or any other person or persons, corporation, municipal corporation or other civil division of this State, except Homer Baird, James H. Washburne, estate of Michael White and Ernest Ruff.

Fourth. — Your petitioner has filed herewith as a part of this petition a map, showing the lands and waters to be acquired and a profile of the proposed conduit line.

Fifth. — Port Creek is a small mountain stream fed by springs, having a water-shed of about two and one-half miles and is located in the foot-hills of the Adirondack Mountains, about three miles from the city of Gloversville. It is a tributary to what is known as the "Potter's or Phelp's Street Creek," another small mountain stream which empties into Mayfield Creek and ultimately flows into the Sacandaga River, at Fish House. Port Creek normally has a flow of about 250,000 gallons a day. It is about two miles long from the headwaters to the point where it empties into the Potter or Phelp's Street Creek. The water-shed is poor mountain land covered in spots with scrub timber. The population consists of eight persons.

It is proposed to tap this stream by a pipe line at a point marked on said map "Proposed Intake." This intake is located on the lands of one Homer Baird, in the town of Johnstown, Fulton county, N. Y., at a point about a mile from where said Port Creek enters the Potter or Phelp's Street Creek. It is the purpose of your petitioner to divert the water of the stream at this point and by a pipe line carry the water into the Rice Creek Storage Reservoir.

This stream is important to the city of Gloversville for the purpose of increasing the water supply of a storage reservoir owned

by it, known as the "Rice Creek Storage Reservoir," marked on said map. The city of Gloversville already has acquired rights in this creek, in that section thereof marked on said map and referred to as the "Barker Farm." The Rice Creek Storage Reservoir is the main storage reservoir of the city of Gloversville and it is its main supply in case of drought and low water conditions. By means of the proposed addition the sources of supply of the water-shed area tributary to the Rice Creek Reservoir will be substantially increased.

About the year 1889 the Board of Water Commissioners of the city of Gloversville adopted a general plan for supplying the city of Gloversville with water, and since that time has been carrying out this plan to which the proposed taking of the waters of Port Creek is incident. It has obtained and is now using the waters of Jackson Creek, Dixon Creek, Beach Creek and Rice Creek. It has constructed on these creeks intakes and reservoirs and also pipe lines leading therefrom to the city of Gloversville. The storage reservoir known as the "Rice Creek Storage Reservoir" is constructed on Rice Creek and at the time of its construction it was the intent of this board to take the waters of Port Creek by means of a pipe line and divert the stream into the said storage reservoir. It is this plan that it is seeking to carry out.

Heretofore, and on or about the 7th day of November, 1905, a resolution was adopted by the Board of Water Commissioners of the city of Gloversville to obtain such water rights and lands as herein set forth and directing that proceedings be taken for that purpose.

Sixth. — Your petition estimates the expense of obtaining the land and water rights referred to herein, and the necessary construction work in connection with the piping of said waters to the Rice Creek Storage Reservoir will not exceed eight thousand dollars (\$8,000). It proposes to pay in cash for such rights and construction expenses and now has the funds in its possession for that purpose.

Seventh. — No previous application has been made herein.

WHEREFORE, your petitioner respectfully petitions for the consent of your honorable body to make the proposed extension to its water system and to acquire the waters of said creek and also such lands and rights as it shall deem necessary for the purposes herein.

THE BOARD OF WATER COMMISSIONERS OF GLOVERSVILLE, N. Y.

By A. L. CARPENTER, *President.*STATE OF NEW YORK, }
COUNTY OF FULTON. }
ss.:

ALBERT L. CARPENTER, being duly sworn, deposes and says that he is the president of the Board of Water Commissioner of the city of Gloversville, N. Y., the petitioner herein; that he has read the foregoing petition and knows the contents thereof; that the same is true to the knowledge of deponent, except as to matters therein stated to be alleged on information and belief, and as to those matters he believes it to be true; that the reason why this petition is not made by the petitioner personally is that your petitioner is a department of the municipal corporation of the city of Gloversville and deponent is the president of said Board of Water Commissioners.

A. L. CARPENTER,
President.

Subscribed and sworn to before
me this 26th day of November,
1906.

HENRY C. MCKEE,
*Notary Public.**Decision.*

STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the CITY OF GLOVERSVILLE, for ap-
proval of its plans, maps and pro-
files for a new and additional
source of water supply.

The city of Gloversville by its petition in writing, duly verified November 26, 1906, made application to the State Water Supply Commission for approval of its maps, plans and profiles for an additional source of water supply.

The application with the exhibits accompanying the same were

filed with this Commission at its office in the city of Albany, November 27, 1906.

The Commission thereupon directed a public hearing, gave the requisite notice thereof, and caused the same to be published in two newspapers, to wit: The Gloversville Daily Leader and the Morning Herald, both published in the city of Gloversville.

Pursuant to such notice the hearing was held at the Common Council chamber in the city of Gloversville, December 15, 1906.

William A. MacDonald, Esq., appeared for the city of Gloversville.

Frank Talbot, Esq., and Eugene D. Scribner, Esq., appeared in behalf of Talmadge Parsons, Frank Ruff, James H. Washburn and William White, who had filed objections to the application.

The proofs and arguments taken and heard at said hearing were reduced to writing and are on file at the office of the Commission.

An analysis of a sample of the water proposed to be taken shows this water to be of excellent quality and admirably adapted for use as a public supply.

All the material allegations of the petition were established upon the hearing. The proofs show that the plans proposed are justified by the necessities of the city and that the same are just and equitable to other municipalities affected thereby and to the inhabitants thereof, consideration being given to their present and future necessities for sources of water supply, and at the hearing the objections to those two propositions were withdrawn.

The statute (section 3 of chapter 723 of the Laws of 1905, as amended by chapter 415, Laws of 1906) requires that the application "shall be accompanied by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans."

The application of the petitioner simply states that the city of Gloversville proposes to pay in cash "the expense of obtaining the land and water rights referred to" therein "and the necessary construction work in connection with the piping of said waters to the Race Creek Storage Reservoir," and that it now has the funds in its possession for that purpose.

From the testimony taken on the hearing it appears that the present bonded indebtedness of the city for its water system is \$145,500; that there is a sinking fund of \$57,000, of which

\$27,000 is in cash, and \$30,000 is invested in local improvement bonds of the city. From this fund it is proposed to pay the cost of executing the proposed plans, which is estimated to be \$8,000.

The application and this proof fails to meet the requirement of the statute relative to the plan for the determination of proper compensation for damages to persons and property, whether direct or indirect. It does not affirmatively appear by the testimony that there will not be a claim for indirect damages.

The city, however, entered into a stipulation upon the hearing and to that extent modified its plans relative to the determination and damages, to the effect that if claims for indirect damages are presented, the court or tribunal before which the claim is heard should not be limited in the reception of evidence to the rules regulating the proof of direct damages.

This Commission is given authority either to approve the application as presented, or with such modifications in the plans submitted as it may deem necessary to protect the water supply and the interests of any other municipality and the inhabitants thereof.

The Commission, therefore, deems it necessary to modify and hereby does modify the submitted plan of the city of Gloversville relative to the determination of proper compensation for damages to persons or property, whether direct or indirect, by adding the following words at the end of the sixth paragraph of the verified petition, viz.:

Any person claiming to be directly or indirectly damaged, either in person or property, by the acquisition of the lands and the execution of the plans hereinbefore set forth, their heirs, assigns or personal representatives may file a statement of such claim with the Board of Water Commissioners of the city of Gloversville, and the said Board will make a reasonable effort to adjust and pay such damages if any. If a claim for such damages is not adjusted and an action is brought in any of the courts of this State to recover the same, the city of Gloversville hereby stipulates, agrees and consents that the court in which such action is brought shall not be limited in the reception of evidence to the rules regulating the proof of direct damages.

The State Water Supply Commission, therefore, determines:

1. That the plans proposed by the city of Gloversville are justified by public necessity.
2. That such plans are just and equitable to the other municipalities and civil divisions of the State affected thereby and to the

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inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply.

3. That said plans, as hereby modified, make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution of said plans.

The State Water Supply Commission does hereby approve the map of the lands to be acquired by the city of Gloversville for a new or additional source of water supply and the profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the waters when impounded, plans, surveys and abstract of official reports relating to the same, and the plan or scheme as modified for the determination of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans.

In Witness Whereof, the State Water Supply Commission
hath caused this determination and approval to be
signed by the Commission and hereunto caused its
[L. S.] official seal to be affixed and the same with all the
plans, maps, surveys and other papers relative thereto
filed in the office at the city of Albany, this 18th day
of January, 1907.

H. H. PERSONS,

President,

CHARLES DAVIS,

MILo M. ACKER,

ERNST J. LEDERLE,

JOHN A. SLEICHER,

State Water Supply Commission.

APPLICATION NO. 15.

Made by the VILLAGE OF CAETHAGE on the 13th day of December, 1906.

The following documents were filed with the application:

1. Petition.
2. Certificate of analysis from the Lederle Laboratories.
3. Notice of special election.

4. Report of James P. Brownell, civil engineer.
5. Plans, maps, profiles and topographical survey.

An order was made and filed by the Commission on the 14th day of December, 1906, for a hearing on the application, to be held at the Village Hall in the village of Carthage, N. Y., on the 4th day of January, 1907, at 10 o'clock in the forenoon, and that notice of such hearing be published once a week for two successive weeks in the Carthage Tribune, Carthage Republican and Lewis County Democrat. Objections, if any, to be filed in the office of the Commission at Albany on or before January 2, 1907.

Petition.

Village of Carthage. — The petition of the village of Carthage respectfully shows that the village of Carthage is a municipal corporation duly incorporated by chapter 834 of the Laws of 1869. That said village is located on the easterly side of Black river, in the town of Wilna, Jefferson county, N. Y., and has a population of 3,630, as shown by the last census. That said village has at present a water system, the mains of which cover practically all of the streets in said village and the water supply at present is obtained from Black river by means of an intake pipe which is located a short distance below the State dam in said village. That at the present time the said village of Carthage is furnishing water through said system to the village of West Carthage under a contract, and that the population of the village of West Carthage as shown by the last census is 1,377.

Lands to be acquired and source of water. — Your petitioner further shows that it is necessary and desirable that a new source of water supply be obtained for the said village. That the Board of Water Commissioners of the said village caused surveys, plans and estimates to be made covering a proposed supply to be taken from the stream known as Indian river, or Cold creek, in the town of Croghan, Lewis county, New York. That acting upon the report, estimate and plans submitted to said Board of Water Commissioners by its engineers, the village board of the village of Carthage called a special election for the voters of said village, to vote upon the proposition of expending the sum of \$125,000 or as much thereof as might be necessary for the purpose of securing a supply of pure water for the said village from the source above mentioned. That a copy of the notice of said special election is

hereto annexed and made a part of these papers. That the said special election was duly had as provided in said notice on the 18th day of September, 1906, and the said proposition was carried by a vote of 205 in favor of said proposition, to 59 against it. That the report of its said engineers showed that the proposed water system could be established at a cost of something less than \$125,000. That accompanying this petition are maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoir and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded. That annexed hereto is the report of the engineer upon the proposed system to the Board of Water Commissioners.

Your petitioner further shows that the proposed source of supply is about five miles from the nearest habitation, and distant fourteen and two-thirds miles from Carthage, and the water is of fine quality for domestic use as is shown by the chemical analysis thereof, which is hereto attached. That the water for the supply is taken from one of the many streams which form the headwaters of Indian river, and that within one mile below the proposed dam are three other small streams flowing into Indian river with a quantity of about 6,000,000 gallons per twenty-four hours. That the flow of the stream at the proposed reservoir is over 2,000,000 gallons per twenty-four hours and that the quantity of water per twenty-four hours required for the needs of Carthage system is about 300,000 gallons per twenty-four hours. That the said Indian river receives quantities of water from numerous streams flowing into it until it becomes a good sized river within twenty miles of the proposed reservoir. The proposed source of supply is peculiarly free from contamination, as it is a very sandy soil, and can never be used for agricultural purposes, or in fact for much of anything else, and is at the height of land in the Indian river water-shed, and can receive no drainage from the surrounding country. The whole supply of water to this stream issues from a spring at the base of a large sand hill, and the water is to be taken at a short distance below this spring.

Necessity of new water supply.— Your petitioner further shows that the accompanying maps show the plans and surveys of the proposed system.

Your petitioner further shows that a new source of supply is necessary for the water system of the said village for the reasons which are herein set forth, viz.: That the said village of Carthage

is located at the foot of navigation on Black river, and that the stream for over forty miles above said village is sluggish and with very little fall. That the village of Lowville, which is situated about sixteen miles above Carthage, empties practically all its sewage into said stream, and that the same is true of a number of other villages situated along Black river or on streams which are tributary thereto. That there are large quantities of flat lands on either side of the said river for long distances above the village of Carthage and that at various periods of the year during which there is high water, the river overflows its banks, and carries down the stream towards Carthage all the refuse which may be accumulated on the said flats; that often in times of high water the carcasses of various deceased animals are carried down the said stream and lodged on racks and dams which are directly above the intake to the present system. That a number of private sewers in the village of Carthage empty into the said Black river but a short distance above said intake and that the whole of said stream above Carthage forms a natural sewer for the country bordering it on each side, besides receives the filth from various pulp and various mills which are situated on it or upon its tributaries above the village of Carthage.

Scheme of compensation.—It is proposed to raise \$5,000 more than is required by the engineer's estimate, which is considered ample for the purchase of all lands and rights of way necessary for the proposed system. The water commissioners now have an option of the thirteen and one-quarter acres upon which the reservoir is to be built by which the owners agree to convey the said land to them for \$105. This leaves only the right of way for pipe line to be secured and as the line traverses a very poor country, and wild land nearly all the way to Carthage the cost of this will be very small. It is proposed to use this amount for the above purpose, and for the payment of damages should it be necessary. If by any possibility the amount should be inadequate, then another appropriation will be made for such purpose.

Indirect damages.—If a claim for indirect damages is not adjusted by the village of Carthage, and action is brought in any of the courts of this State to recover the same; the court in which said action is brought shall not be limited in the reception of evidence to the rules regulating the proof of direct damages.

Municipal corporations which might be involved.—The first incorporated village on the Indian river is the village of Antwerp

which is forty miles from the proposed reservoir. This village takes its water supply from Indian river, and the president of the village is Frank C. Drake, of Antwerp, New York, and the population of the said village is 929 as shown by the last census.

The next incorporated village on said stream is the village of Philadelphia which obtains its water supply from a source other than Indian river and makes no use of the said waters, except as a power for a municipal lighting system. The population of this village is 873 as shown by the last census, and its president is Hon. J. Frank LaRue, of Philadelphia, N. Y., and the village is distant forty-eight miles from the proposed reservoir.

The next village on said river is the village of Theresa, which is about fifty-five miles from said proposed reservoir and obtains its water from said river and also operates a municipal lighting plant on said stream. The president of this village is Fred Rodenhurst, of Theresa, New York, and the population is 917 as shown by the last census. All the above villages are situated in Jefferson county and are the only communities of any size located on said stream. Fifteen miles below Theresa, Indian river flows into Black lake, a large lake situated in St. Lawrence county.

Justice and equity of proposed plans.—The proposed plan for the Carthage system diverts only a very small proportion of the water which flows through the municipalities named in the foregoing paragraph. At all seasons of the year there is an ample supply of water for the purposes for which it is used or could be used by the municipality or its inhabitants and the diversion proposed to be made of the waters from one of the small streams which go to make up the said Indian river could have no appreciable effect upon any of the municipalities above named.

United States geological survey.—The sheets of the United States geological survey do not at present cover all of the territory mentioned and described in the plans herewith submitted, and the map submitted by our engineer shows a continuation of the United States geological survey map, and shows the water-shed of the Indian river and the topography of the territory covered by the proposed plan.

WHEREFORE, your petitioner prays for the approval of its maps and profiles of such additional source of water supply as set forth in the foregoing petition.

CHARLES F. ADAMS, M. D.,
President, Village of Carthage, New York.

To STATE WATER SUPPLY COMMISSION, Albany, N. Y.

STATE OF NEW YORK, }
JEFFERSON COUNTY. }ss.:

Dr. CHARLES F. ADAMS being duly sworn deposes and says that he is the president of the village of Carthage, duly elected and qualified and acting as such president; that he has read the foregoing petition, engineer's reports, chemical analysis, and all other papers accompanying this report and has also seen the maps and profiles accompanying the said report and that all the statements contained in said report are true to the knowledge of deponent except as to the matters therein stated to be alleged on information and belief and as to those matters he believes it to be true, and that the maps and profiles accompanying said petition are a correct representation of the proposed plans for a new water supply system for the village of Carthage to the best of deponent's knowledge.

CHARLES F. ADAMS, M. D.

Sworn to before me this 12th
day of December, 1906.

L. H. BONER,
Justice of the Peace.

APPLICATION No. 16.

Made by the HANNACROIX WATER COMPANY, supplying the villages of Coeymans and Ravena in Albany county, on the 22d day of December, 1906.

The following documents and maps were filed with the application:

1. Petition.
2. Certificate of incorporation and names of directors.
3. Statement of engineer in charge.
4. Undertaking, \$500 in amount.
5. Plans, maps and profiles.
6. Topographical map.

Petition.

BEFORE THE STATE WATER SUPPLY COMMISSION.

In the Matter of the Application of
the HANNACROIX WATER COM-
PANY for approval of its maps
.and profiles of its proposed new
reservoir and new source of
water supply.

To the State Water Supply Commission:

The petition of the Hannacroix Water Company of RAVENA,
Albany county, New York, respectfully shows:

First.—That your petitioner is a domestic corporation, duly
organized under the laws of the state of New York, having its
principal office at RAVENA, in the county of Albany, said State,
and that its purposes and officers are set forth in the enclosed affi-
davit of J. Warren Lamb, marked Exhibit A, and made a part of
this petition.

Second.—That your petitioner has purchased and owns a reser-
voir at RAVENA, and a water supply source and dam at Dean's
Mill in the Hannacroix creek, from which pipes conduct the water
to the villages of RAVENA and COEYMANS, and to the reservoir at
RAVENA.

That your petitioner has contracts with the town of COEYMANS
for supplying the water districts of RAVENA and COEYMANS in said
town with water, and also a contract with the NEW YORK CENTRAL
and HUDSON RIVER RAILROAD COMPANY for supplying water to the
railroad at RAVENA. That RAVENA is an important and growing
railroad center, and RAVENA and COEYMANS together contain about
2,500 inhabitants, and a large quantity of water is used; that the
water is supplied by your petitioner by the gravity system.

Third.—That for the purpose of protection against failure of
water in case of a severe drought your petitioner has purchased a
farm of over 100 acres of land in said town of COEYMANS, located
upon higher land than the present source of supply in said reser-
voir at RAVENA, and upon which is located a small stream and a
natural or easily constructed reservoir. That the purpose of pur-
chasing said farm was to construct a storage reservoir for use in
case of need, as aforesaid. That your petitioner commenced the
construction of the said reservoir without knowledge of the recent

statute in relation to obtaining the consent of your honorable body, but since attention being called to the law all work thereon has ceased, but your petitioner is desirous of building the same.

Fourth.—That accompanying this petition, and made a part thereof, as an exhibit, are maps of the lands required and profiles thereof, showing the sites and areas of the proposed reservoir, the profiles of the flow lines of the water when impounded, to which reference is hereby made.

Fifth.—That accompanying this petition and made a part thereof as an exhibit are said plans and surveys, and also the report of J. Warren Lamb, civil engineer employed by your petitioner, and which is hereto annexed and marked Exhibit B, made a part of this petition.

That the need of said additional water supply consists in the fact that if the present supply should fail, on account of a severe prolonged drought, there would be no fire protection furnished said villages and its inhabitants, and no adequate water supply for domestic uses and no water supply for the use of said railroad.

Sixth.—That the plan or scheme to determine and provide for the payment of proper compensation for any and all damages to persons or property, whether directly or indirectly, which will result from the construction of said reservoir and the execution of said plans, is that your petitioner now owns the land upon which said reservoir is to be located, and will purchase and secure by conveyances and releases thereof, if the amount can be agreed upon, and if not to acquire by condemnation proceedings in the form and manner declared by statute in such cases made and provided, any additional land which will be overflowed or damaged by said reservoir, and to properly compensate and pay all persons for any damages suffered or incurred by reason of said reservoir. That your petitioner has now funds on hand ample and sufficient for the purposes aforesaid.

That in case any claim for indirect damages is not adjusted, and an action is brought in any of the courts of the State to recover the same, the court in which such action is brought shall not be limited in the reception of evidence to the rules regulating the proof of direct damages.

Seventh.—That the water supply for said reservoir is the spring water from the springs arising upon said farm and is pure and wholesome, not contaminated from any source.

Eighth.—That there are no municipal corporations or other civil divisions of the State affected by the proposed project, and

no such other municipal corporation or civil division of the State or inhabitants thereof are within the water-shed of the proposed source of supply, nor is the source of supply tributary, nor can the same be made tributary to any such other municipal corporation or civil division of the State or to the inhabitants thereof, and there being none such the said plans are just and equitable in view of the present and future necessities for sources of water supply.

Ninth.—That the approximate capacity of the storage reservoir planned and the extent of drainage area is shown by the maps accompanying this petition and by the report of said engineer, annexed hereto and marked Exhibit B.

WHEREFORE, your petitioner prays that your honorable commission do approve this application and the maps and profiles, plans and surveys adopted by your petitioner and herewith submitted and presented.

Dated, December 19, 1906.

HANNACROIX WATER COMPANY.

By J. WARREN LAMB,
Vice-President.

STATE OF NEW YORK, }
COUNTY OF OTSEGO. } ss.:

J. WARREN LAMB, being duly sworn, says that he is vice-president of the Hannacroix Water Company, the petitioner herein; that the foregoing petition is true to his own knowledge, except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes to be true.

JOHN R. KERBY,
Notary Public.

APPLICATION No. 17.

Made by the CITY OF PLATTSBURG, on the 19th day of January, 1907.

The following documents were filed with the application:

1. Petition.
2. Statement of Mayor and Corporation Counsel.
3. Resolution of Board of Public Works.
4. Resolutions of Board of Health.
5. Resolutions of Common Council.

6. Analysis of water from water shed, proposed to be taken.
7. Map of water shed.

The Commission made an order on January 24, 1907, that public notice be given that on the 14th day of February, 1907, the Commission will meet at the Common Council Chamber in the city of Plattsburg for the purpose of hearing all persons, municipal corporations or other civil divisions of the State that may be affected thereby, and designating the Plattsburg Daily Press and Plattsburg Evening News as the newspapers in which notice of such meeting should be published once a week for three successive weeks, and February 13, 1907, as the last day on which objections to the proposed plan can be filed.

APPENDIX IV.

Inspections and Visits of Commission.

In Re River Improvement Work.

The Canaseraga Creek Improvement from Dansville to Mt. Morris.

Inspected for the first time June 16, 1906; and then frequently thereafter.

Schroon River Water Shed, from its junction with the Hudson River to its source; October 25th, 26th and 27th.

The Upper Hudson River Water Shed, north of North Creek, including also the Boreas River; October 27th and 28th.

The Raquette River Shed, in the neighborhood of Little Tupper and Round Lakes; July 24th; Sept. 6th.

River Improvements in Massachusetts at Holyoke; January, 1907.

In Re New Water Supplies.

The Croton Valley, and the Bronx and Bryram Water Sheds.

Lockport; the present source of supply, and the proposed intake in the Niagara River.

Malone; the water sheds of the present supply, and of the proposed sources of supply.

Brewster; the source of the present supply, and the proposed new intake.

White Plains; the present source of supply and the proposed supply.

Buffalo; the present source of supply, and the new intake.

Bergen; the proposed source of supply.

Holland Patent; the proposed source of supply.

In Re Sewage Purification.

Plainfield, N. J.; Bacterial Disposal Method.

APPENDIX V.

Form of Information Blanks and Abstracts of Reports of Municipalities in Relation to Water and Sewerage.

The following letter and list of questions requesting detailed information respecting present water supplies and methods of sewage disposal were sent to all municipalities in the State, numbering 1,500.

STATE WATER SUPPLY COMMISSION OF NEW YORK.

ALBANY, *October 1, 1905.*

.....

.....

Dear Sir:—The matter of securing an abundant supply of pure water and the proper disposal of sewage has become so vitally important, and the interests of all the people of the State are so seriously affected thereby, that the State Water Supply Commission has been created for the special care and consideration of this subject.

To carry out the provisions of the act under which the Commission has been appointed, it has been found necessary to formulate the series of questions we enclose, and you are respectfully urged to aid in promptly obtaining as complete and comprehensive answers to them as is possible.

Some of our inquiries may, at first sight, appear not entirely pertinent, but it must be remembered that our work is along new lines of public protection and safety, and we feel assured that the complete data when classified will be most useful to the people of the State, in the solution of the complex and serious problems involved.

We invite your cordial coöperation in the work that has been entrusted to us.

Respectfully,

HENRY H. PERSONS,

President.

(COPY OF INFORMATION BLANK.)

Office of the State Water Supply Commission, Albany, N.Y.

Sir:— In pursuance of the powers and duties conferred upon the State Water Supply Commission by section 6, chapter 723, Laws of 1905, to which your attention is hereby called, this Commission respectfully request you to make a prompt report to it at its office in the city of Albany on the following matters appertaining to the water supply and distribution and the sewage disposal of your municipality:

WATER SUPPLY.

1. Is there provided a public water supply?
2. Is it operated by the municipality?
3. If by a private corporation, give its name.
4. What is the source of the water supply, public or private?
Enclose maps (27" x 40") showing the water shed, the location of pumping stations, of intake pipes, of collecting reservoirs or wells, distributing reservoirs, distributing systems, purification plant, etc.; indicate the location of prominent buildings, such as dwellings, factories, stables, etc., on the water shed.

Indicate on the map the sizes of pipes, the character of pipes, the location of gates, of hydrants, of service connections, etc.

Maps smaller than 27" x 40" should be mounted on sheets of that size; maps larger than 27" x 40" should be folded to the proper size. Blue prints are acceptable.

5. When was the construction of the water works begun?
6. Give the original outlay.
7. At what times and at what cost were material additions made to the water works?
8. Is the water subjected to a purification process?
9. Explain by what means, furnishing the following information: kind of filter, mechanical or sand, and by whom installed or designed?

If a sand filter, furnish plans showing the sand bed, their arrangement, size and number; the depth of sand, the depth of water on the sand, the capacity of each bed in gallons per acre per day, details of sedimentation or settling basin, of clear water reservoir, of drainage system;

whether chemicals are used, aeration furnished; size of inlet and outlet pipes; method of regulating the head of the filters; periods of service between cleanings, etc.

If mechanical filters are used, furnish similar information.

10. What kind of sand is used in the filters, where is it obtained, and what is its size and uniformity coefficient?
11. Is the purification plant at present installed the same as the original plant? If not, state at what times and at what cost material changes were made and for what reason?
12. Give the cost of the purification treatment per million gallons of water treated. Furnish separate figures for labor, chemicals, interest charges, laboratory, etc.
13. Are tests made of the purity of the water? *a* Physical? *b* Chemical? *c* Bacteriological? In what way, how often and by whom are the tests made? Furnish the general results of such tests for the last calendar year.
14. What is the cost of the laboratory per million gallons of water used?
15. Are complaints received concerning the turbidity, odor, etc., of the water?
16. At what periods of the year are such complaints most frequently received?
17. What are the capacities of the various reservoirs? Indicate whether for storage, for settling or for distribution and how many days' supply each contains. State which reservoirs, if any, are covered?
18. What other sources of supply are used in addition to the public supply? Furnish as specific information as possible, indicating the number of wells, etc.
19. What is the extent of drainage area from which the supply is obtained?
20. How is the sanitary condition of the water shed ascertained and controlled?
21. What is the annual expenditure for examining and controlling the purity of the water supply? Itemize the account in a general way.
22. What portion of the water shed is owned by the municipality or corporation?
23. What inspection of the plumbing and distributing system is maintained? Give the number of men employed, their rank and the annual cost.

24. Are rain gauge records kept at various points in the water shed? Furnish the annual record for the past 10 years.
25. Are gaugings taken of the stream from which the water supply is obtained? Furnish a condensed statement of the annual yield of the stream for the past 10 years.
26. Does any other municipality obtain water from the same water shed above the intake? If so, specify.
27. What pollution exists above the intake point from which the supply is obtained?
28. What is the average daily yield, taken for one year, of the water shed?
29. Has the source of supply ever failed? Give the dates and periods of time.
30. What population is included within the municipality? Give the figures for 1860, 1870, 1880, 1890, 1900 and 1905.
31. How many persons are now supplied from the public supply, and how many from other sources?
32. What is the average daily consumption per inhabitant?
33. State the consumption in gallons per day per inhabitant—
 - a. used for domestic purposes.
 - b. used for commercial and industrial purposes.
 - c. used for public purposes.
 - d. wasted.
34. Furnish the following information:
 - a. The number of houses within the municipality.
 - b. The total number and sizes of service taps in use.
 - c. The number of bath tubs.
 - d. The number of water closets.
 - e. The number of wash tubs, sinks and basins.
 - f. The total number of faucets.
 - g. The total number of meters in use.
 - h. The total number and sizes of hydrants.
35. What income is derived from the sale of water:
 - a. By meter.
 - b. Otherwise.
36. Are the meter charges graded according to the consumption? Furnish the meter rates and also all other water rates.
37. Is the water system a gravity or pumping system?
38. How much water is pumped per annum? Furnish the figures for the past five years.

39. How much water enters the piping system per annum which is not pumped? Furnish the figures for the past five years.
40. Explain how the quantities in questions 38 and 39 were determined.
41. What is the average static head against which the pumps work?
42. What is the average dynamic head against which the pumps work?
43. What are the ranges of pressures in the main?
44. Give the sizes and length of pipe in use.
45. If there are any dead ends, state how many and how often they are cleaned.
46. What is the cost of the repairs per mile of pipe per year?
47. By what power are the pumps operated?
48. Give the duty of the pumps in foot pounds per 100 pounds of coal burned, making no deductions.
49. Give the cost per million gallons raised one foot high, figured on pumping station expenses.
50. Give the cost per million gallons raised one foot high, figured on fixed charges, and operating and maintaining expenses.
51. Give the cost of the entire water works to date.
52. Give the total bonded debt at date, stating the date of issue, when due and the rate of interest.
53. Give the value of the sinking fund at date.
54. Does the municipality pay for the use of water for fire protection?
55. If so, how much?
56. Is there a separate water supply and distribution system for fire protection?
57. If so, furnish details.
58. What has been the annual death rate per 1,000 of inhabitants? Furnish the figures for the past five years.
59. What has been the annual death rate from typhoid fever per 1,000 of inhabitants? Furnish the figures for the past five years.
60. Enclose the latest water reports, with a copy of such public rules and regulations as have been adopted with the approval of the State Department of Health for the protection of the water supply.

SEWAGE DISPOSAL.

1. Have public sewers been constructed?
2. If there is no public sewage system, how is the sewage disposed of?
3. Are there separate storm and house sewers, or is the system a combined system?

4. What is the capacity of the final discharge pipes in gallons per day?
5. When was the construction of the sewers first begun?
6. By whom was the system designed? (Municipal officer or otherwise?)

7. What was the original expenditure?
8. When have material additions been made to the sewage system and at what cost? Who designed the additions?

9. What proportion of the area of the locality is sewered?

Furnish maps showing the location of pipes, their cross section, their sizes, the materials of which made, the location of manholes, of flush tanks, the grade of pipes, etc. The maps should be 27" x 40" in size; if larger maps are in existence, they may be folded to this size; if smaller maps, they should be mounted on paper 27" x 40". Blue prints are acceptable.

10. What is the number of house connections?
11. What are the general sizes of the connecting pipes?
12. What is the number of surface connections to the sewers?
13. What are their dimensions?
14. What is the number of manholes per thousand feet of sewers?
15. What is the total number of manholes?
16. What proportion of the area of the sewered locality is paved?

If possible, furnish the quantities of the various classes of pavement.

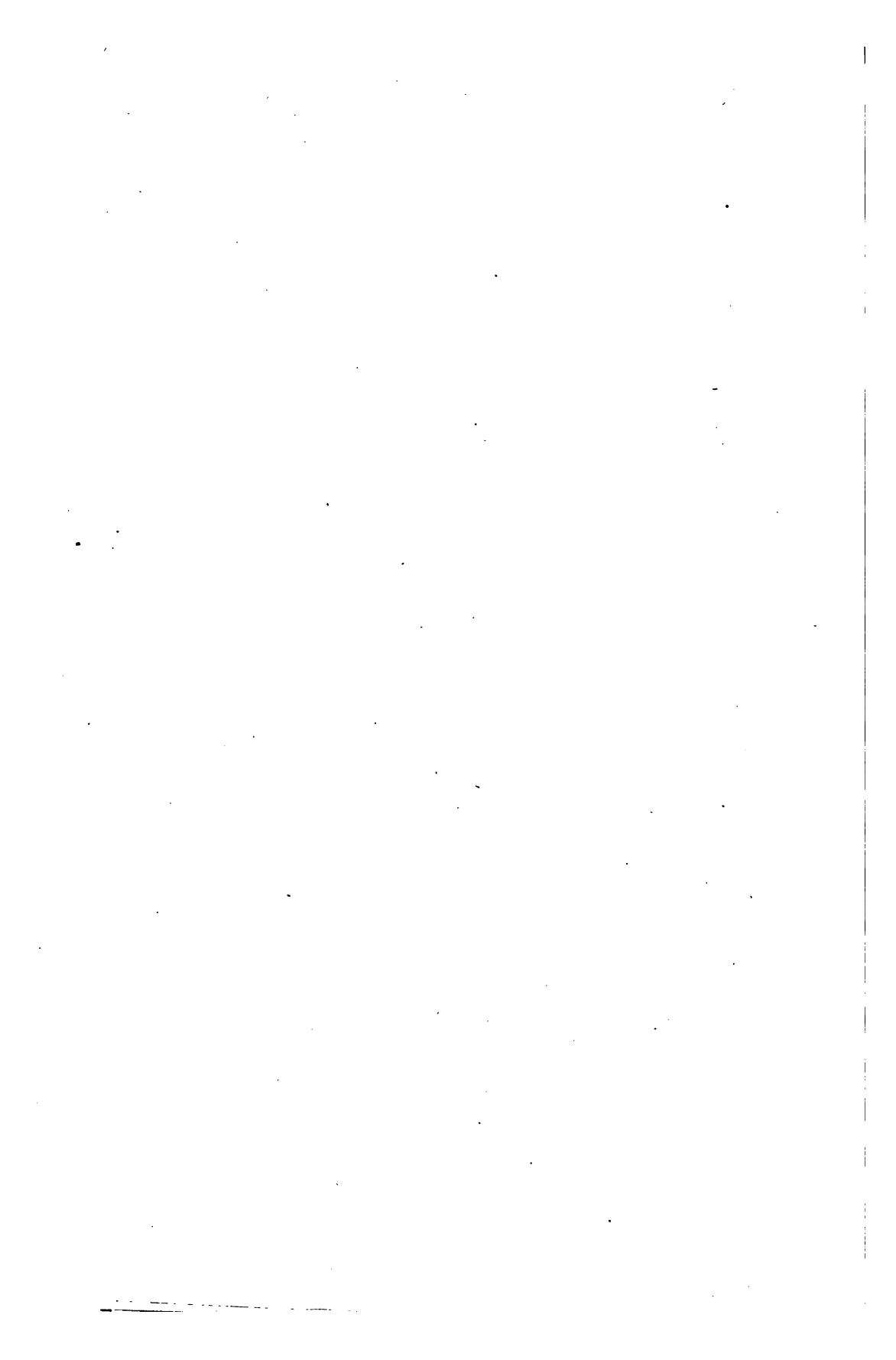
17. If there is no present system of sewers, is any construction contemplated?

18. Furnish the details of such contemplated construction.

19. What is the final disposal of the sewage?

20. If the sewage is treated before discharge, explain in detail by what means. Such information as the use of a septic tank, character of sand filter, use of chemicals, the capacity of the filters in gallons per acre per day, sizes of sand or gravel or broken stone, length of time sewage is under treatment, and any other available data should be included. Drawings of the disposal plant should be furnished.

21. Is all the sewage subjected to a purification treatment?
22. If not, furnish the figures of the amounts of treated and untreated sewage.
23. Is a laboratory maintained to test the efficiency of the treatment?
24. If so, by whom is it operated and how many men does it employ?
25. What is the character of the analysis, bacteriological or chemical?
26. State the number of analyses made per day.
27. What is the cost of the laboratory per million gallons of sewage treated?
28. When was the purification plant installed?
29. What was its original cost?
30. What changes have been made since its installation and at what cost?
31. State why such changes were necessary and what results have since been obtained?
32. Give the cost of the sewage treatment per million gallons. If possible, furnish separate figures for labor, chemicals, interest charges, renewals to plant, etc.
33. What has been the cost of the treatment plant to date?
34. What has been the cost of the sewerage system, excluding the purification plant, to date?
35. What has been the cost of the entire sewerage system?
36. How often are the sewers cleaned?
37. At what cost per mile?
38. Is any of the sewerage pumped?
39. If so, furnish the details, including the cost of operation.
39. What is the total bonded debt of the sewage system, when was it issued, when is it due, and give the rate of interest.
40. What is the sinking fund at date?
41. What are the annual charges for operating and maintaining the entire system? Give in detail the number of men employed, their rank and the annual payroll.
42. Enclose the sewerage reports for the past five years.



ABSTRACT OF REPORTS

RECEIVED FROM

Cities and Incorporated Villages During Current Year.

NOTE: If a municipality responded that no public water works exist, that fact is stated in the abstracts that "No public water supply."

If no answer was received from a municipality, the abstracts show "No information received."



ABSTRACT OF REPORTS

ADAMS (Incorporated Village), Jefferson County.

Population: 1890, 1,360; 1900, 1,292; 1905, 1,449.

Supply furnished by municipality, obtained from springs; village purchased works of private company in 1900 for \$21,000; \$16,500 expended since; no purification process employed; no complaints received of the quality; one 250,000 gallon storage reservoir, one 117,000 gallon distributing reservoir; about 175 wells used in addition to public supply; source of supply has never failed; average daily yield, 500,000 gallons; about one-half population supplied by the public system; daily consumption per capita, 125 gallons; about 300 houses within the municipality, 200 service taps in use, 40 bathtubs, 50 water-closets, 250 faucets, 50 meters, 28 fire hydrants; annual income by meter, \$1,200; otherwise, \$1,200; meter charges, 30 cents to 5 cents per 1,000 gallons; system is pumping; 180,000 gallons pumped per day; pumps operated by steam; cost of pumping, about 3 cents per 1,000 gallons; pressures in main, 50 to 57 pounds; size of pipes, 4, 6 and 8 inches; total, about 14,000 feet; total bonded debt at date, \$37,000 at 3% per cent.; sinking fund at date, \$1,500.

SEWAGE DISPOSAL.

No public sewer system; private sewers and cesspools.

ALDEN (Incorporated Village), Erie County.

Population 1890, 533; 1900, 607; 1905, 711.

No public water supply.

ALEXANDER (Incorporated Village), Genesee County.

Population: 1900, 230; 1905, 207.

No public water supply.

ALEXANDRIA BAY (Incorporated Village), Jefferson County.

Population: 1890, 1,123; 1900, 1,511; 1905, 1,854.

Supply furnished by municipality; obtained from St. Lawrence river; construction begun in 1904; original outlay, \$30,000; additional expenditure of \$1,200 for water supply and sewers in process June, 1906; stand pipe for storage and distribution, with a capacity of 188,000 gallons, covered; individual private wells used in addition to public supply; inspection of plumbing and distributing system by board of water commissioners and engineer, without additional cost; 700 persons supplied from public supply and about 1,200 from other sources; 400 houses within municipality, 176 service taps, 86 bathtubs, 163 water-closets, 264 washtubs, 114 faucets, 1 meter, 64 4" hydrants; income per year, \$2,100; private dwellings: one faucet, \$5; each additional, \$1; bathtub, \$2; each additional, \$1; washtub, \$1; each additional, \$1; water-closets, \$2; each additional, \$1; pumping system: average dynamic head, 115 pounds; pressures in main from 37 to 56 pounds; 10", 8", 6" and 4" pipe in use; 6 dead ends, cleaned every 60 days; pumps operated by gasoline engine; cost of entire water works to date, \$33,188.55; total bonded debt, \$30,000, issued 1904 at 4 per cent. for 30 years; municipality does not pay for fire protection.

SECOND ANNUAL REPORT OF THE

SEWAGE DISPOSAL.

Public house sewers; two 12" discharge pipes; construction begun 1904; original expenditure, \$40,000; % of locality sewerized; 150 4" and 5" house connections; 35 manholes; sewage finally disposed of in St. Lawrence river; cost of sewerage system, \$40,144; sewers cleaned monthly; total bonded debt, \$40,000, at 4 per cent., due in 30 years; annual charges for operating and maintaining system about \$100.

ALLEGANY (Incorporated Village), Cattaraugus County.

Population: 1905, 1,330.
No public water supply.

ALTAMONT (Incorporated Village), Albany County.

Population: 1900, 689; 1905, 669.

Supply furnished by municipality; construction begun 1902; original outlay, \$15,680. In 1898, additional repairs to dam, \$1,000. Water not subject to purification, except aeration at distribution reservoir. No test of purity of the water, except an analysis at Bender Laboratory; water pronounced wholesome. Complaints are received as to odor from algae; most frequently in August. 16,000,000 gallon storage reservoir; 300,000 gallon distributing reservoir. Wells are used in addition to public supply. Extent of drainage area, 1,300 acres. Sanitary condition of watershed not controlled, except immediate vicinity of storage reservoir; no expenditure for examining and controlling the purity of water supply; no portion of the watershed owned by municipality, except reservoir and banks; no men employed for the inspection of the plumbing and distributing system; no rain-gauge records kept; no gaugings taken; no other municipality obtains water from the same watershed above intake; no pollution above intake point, except from pasturage; source of supply never failed. Average daily consumption, 50 gallons; number of houses within municipality, 80; 60 ½-inch taps; 15 to 20 bathtubs; 12 water-closets; 15 to 20 washtubs, sinks and basins; 125 faucets; one R. R. supply; 23 2½-inch double nozzle hydrants. Annual income, \$1,300, total of which \$350 by meter; meter charges graded 8 to 20 cents per 1,000 gallons. Single faucet, \$5 per year. System, gravity. Ranges of pressure in main, 40 to 80 pounds; sizes and length of pipe in use; 934 feet, 8-inch; 2,348 feet, 7-inch; 1,000 feet, 6-inch; 2,483 feet, 5-inch; 4,596 feet, 4-inch; 7 dead ends, cleaned 4 to 6 times per year. Cost of pipe repairs per mile per year, \$50; entire cost of water works to date, \$17,000; total bonded debt to date, \$13,580, due in annual instalments of \$1,000 beginning 1907; 3½ per cent. Municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers have been constructed.

ALTMAR (Incorporated Village), Oswego County.

Population: 1890, 551; 1900, 416; 1905, 373.
No public water supply.

ANGELICA (Incorporated Village), Allegany County.

Population: 1890, 953; 1900, 978; 1905, 1,101.

Supply furnished by municipality obtained from springs; construction begun in 1896; original outlay, \$29,000; \$10,000 additional expenditure in 1904; no purification process; test of purity made by State Department of Health; no complaints; one reservoir with a capacity of 500,000 gallons for storage and distribution; seven days' supply, not covered; about 20 wells used in addition to public supply; the site of spring owned by municipality; no other municipality obtains water from the same shed; no pollution; source of supply never failed; about 900 persons are supplied from public supply, about 100 from wells; about

50 gallons daily consumption per capita; 300 houses within municipality; 225 4" to 2" service taps in use; 20 bathtubs; 15 water-closets; 225 sinks; 300 faucets; 15 meters, and 40 6" hydrants; income per year, \$3,000; meter charges from 6 to 40 cents per thousand gallons; \$8 per year per faucet for domestic uses; gravity and pumping systems; about 36,500,000 gallons pumped per year; about 590,000 gallons enter piping system per annum not pumped; 60 pounds pressure in main; 4 dead ends, cleaned as occasion requires; about \$20 cost of repairs per mile of pipe per year; pumps operated by gasoline engine; cost of entire water works to date, \$40,000; bonded debt of \$23,000 at 3½ per cent.; \$1,000 due annually, and of \$10,000 at 4 per cent. due 1911, payable in \$500 annual installments thereafter; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools; none of locality sewerized; no paving in village.

ANGOLA (Incorporated Village), Erie County.

Population: 1890, 650; 1900, 712; 1905, 806.

No public water supply.

ANTWERP (Incorporated Village), Jefferson County.

Population: 1890, 912; 1900, 929; 1905, 1,014.

Supply furnished by municipality; water pumped by contract at \$500 per year; construction begun in 1895; original outlay, \$19,000; no purification process; no other municipality obtains water from same shed; one box factory and saw-mill, situated above intake; about 200 persons and the factories are supplied from public supply; income per year, \$1,500; meter rates, 2 cents per 1,000 gallons flat rates for private use; rates to factories vary according to amount used; pumping system; average head of pumps, 90 feet; sinking fund at date, \$1,500. Municipality pays \$300 per year for use of water for fire protection; no separate system for fire protection.

SEWAGE DISPOSAL.

No sewers.

Arcade (Incorporated Village), Wyoming County.

Population: 1900, 887; 1905, 1,052.

Supply furnished by municipality; obtained from springs owned by the village; construction begun about 1899; additional expenditure of \$140 in 1905; no purification process; springs are covered; no complaints received of quality; one storage reservoir with a capacity of 220,000 gallons; 150 wells are used in addition to public supply; Superintendent of Water Works inspects plumbing and distributing system at cost of 25 cents per hour; no other municipality obtains water from same shed; 850 persons supplied from public supply; 100,000 gallons consumption per day; income per year, \$1,400; meter rates: 25 cents per 1,000 gallons; from 1,000 to 2,000 gallons, 20 cents per 1,000 gallons; from 2,000 to 5,000 gallons, 15 cents per thousand gallons; from 5,000 to 10,000 gallons, 10 cents per 1,000 gallons; over 10,000 gallons per day; special domestic rates, \$6; closet, \$3; bathtub, \$3; sprinkler, \$3; trough for farm use, \$12; ordinary barn use, \$6; gravity system; 80 pounds pressure in main at Main street; 4" and 6" pipe in use; no dead ends; \$25 annual cost of repairs per mile of pipe; cost of entire water works to date, \$20,000; total bonded debt, \$20,000, issued 1905; interest, 3.80 per cent. Municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Private sewerage system; separate sewers.

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Aurora (Incorporated Village), Cayuga County.

Population: 1905, 623.
No public water supply.

Bainbridge (Incorporated Village), Chenango County.

Population: 1890, 1,049; 1900, 1,002; 1905, 1,113.

Supply furnished by municipality; construction begun in 1898; original outlay, \$33,000; in 1905 about \$600 additional expended; no purification process; no complaints received of quality; watershed not owned by municipality; plumbing system inspected once a year by Commissioner; no rain-gauge records kept; no other municipality takes water from the same shed; no pollution; partial failure of supply in 1899; 800 persons supplied from public supply; 300 from private wells; annual income, \$2,500; gravity system; pressure in main from 40 to 80 pounds; 8", 6" and 4" pipes in use; three dead ends, cleaned once a month in summer; cost of entire water works to date, about \$33,600; original bonded debt, \$31,000, issued 1899; interest, 3.4 and 4 per cent.; instalments of \$1,500, payable on principal each year; no sinking fund at date. Municipality does not pay for use of water for fire protection; separate intake for water supply for fire protection.

SEWAGE DISPOSAL.

Private sewers cover part of village; combined system; construction of sewers begun in 1901; original expenditure, about \$3,000; additions contemplated; about 1-10 of the village is sewerized; about 15 4" and 6" house connections; 2 6" surface connections to sewers; 3 manholes per thousand feet of sewers; none of sewerized locality paved; sewage finally discharged in river; no purification treatment.

Belmont (Incorporated Village), Allegany County.

Population: 1890, 950; 1900, 1,190; 1905, 1,207.

Supply furnished by municipality obtained from springs; construction begun in 1896; original outlay, \$32,000; no additional expenditure; no purification process; tests have been made occasionally by laboratory at Cornell University; no complaints received; one storage reservoir for fire protection holds 18,000 barrels, not covered; one small private plant from springs and about 75 wells used in addition to public supply; watershed surrounding springs owned by municipality; one man inspects plumbing and distributing system at a cost of \$100 per year; no other municipality obtains water from the same shed; no pollution; supply gets low in dry seasons; about 800 persons supplied from public supply and 400 from other sources; from 2 to 3 barrels average consumption per capita; about 300 to 400 houses within municipality, 200 service taps, 50 bathtubs, 50 water-closets, 100 washtubs, sinks and basins, 250 faucets, 25 meters and 53 hydrants; income per year, \$1,200; meter rates are \$6 for the first 18,000 gallons or any part thereof, and the next 12,000 gallons or any part thereof at 27 $\frac{1}{2}$ cents per 1,000 gallons and graded from thereon; flat rates are: first faucet, for one family, \$6; second faucet, \$1; each additional faucet, 50 cents; bathtub in connection with house rate, \$2.50; water-closet, \$3; public bath, \$10; private stable, in connection with house rate, one horse or cow, \$2; each additional horse or cow, \$1; lawn hydrant in connection with house rate, \$3; not in connection with house rate, \$4; office and stores, one faucet, \$3; each additional faucet, \$1; hose attachment for sidewall windows and street sprinkling for office and stores, \$3; gravity system; 75 pounds pressure in main when reservoir overflows; 8", 6" and 4" pipe in use; 3 dead ends, cleaned twice each year; \$300 cost of repair to pipe; cost of entire water-works to date, \$32,000; total bonded debt at date, \$28,000; issued 1896 at 3 $\frac{1}{2}$ per cent., payable in annual payments of \$500 per year; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; six or eight private sewer systems, some quite extensive. Sewage empties into running water, cesspools, or is drawn away and plowed under.

BLOOMINGDALE (Incorporated Village), Essex County.

Population: 1905, 1,372.
No public water supply.

BOONVILLE (Incorporated Village), Oneida County.

Population: 1890, 1,613; 1900, 1,745; 1905, 1,734.
Supply furnished by municipality; obtained from springs; construction begun in 1897; original outlay, \$44,000; mains have been extended from time to time; no purification process; test of purity made June, 1906, and chemist reported water entirely satisfactory; no complaints received; reservoir has a capacity of 4,000,000 gallons, not covered; not over 12 wells used in addition to public supply; reservoir formed by natural springs rising on land owned by municipality; watershed inspected by local board of health; small portion of watershed owned by municipality; superintendent inspects plumbing and distributing system at a cost of \$250 per year; no other municipality obtains water from the same shed; about 1,500 persons supplied from public supply; 428 $\frac{1}{2}$ " service taps in use; income about \$4,500 per year. Meter rates: For the first 20,000 gallons, \$6 per year; next 10,000 gallons, 30 cents per 1,000 gallons; next 10,000 gallons, 25 cents per 1,000 gallons, and next 35,000 to 100,000 gallons, 20 cents. Gravity system: 70 to 115 pounds pressure in main; 4" to 12" pipe in use; 4 dead ends, cleaned about four times a year; cost of entire waterworks to date, \$50,000; total bonded debt at date, \$40,000, at 3 $\frac{1}{2}$ per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public and private sewers; combined system; some sewers have been in use since 1860; street commissioners designed system; extensions each year under direction of street commissioner; 6" house connections; sewage finally discharged into Black river.

BREWSTER (Incorporated Village), Putnam County.

Population: 1900, 1,192; 1905, 1,277.
Supply furnished by two small private plants; water obtained from springs and artesian well; no purification process employed; chemical test of purity made by United Laboratory Co. of New York; 1 reservoir, capacity 85,000 gallons; about 100 wells used in addition to public supply; drainage area for gravity supply by springs $\frac{1}{2}$ square mile; watershed private woodland; no portion of shed owned by municipality; no other municipality obtains water from same shed; no pollution; gravity supply failed in August and September, 1905; about 50 families supplied by private plants, balance by wells and cisterns; 250 houses within the municipality; gravity and pumping systems; from 2" to $\frac{3}{4}$ " pipe in use; municipality does not pay for use of water for fire protection; public cisterns and streams supply water for fire protection; municipality owns Silsby steamer and chemical engine.

SEWAGE DISPOSAL.

New York City takes care of sewage of portion of village, balance disposed of by cesspools; construction of sewers begun about 1891; system designed by New York City officials; sewage finally treated with electrozone.

BRIDGEWATER (Incorporated Village), Oneida County.

Population: 1900, 266; 1905, 261.
No public water supply.

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BROOKFIELD (Incorporated Village), Madison County.

Population 1890, 561; 1900, 485; 1905, 434.
No public water supply.

BROWNVILLE (Incorporated Village) Jefferson County.

Population: 1890, 666; 1900, 767; 1905, 865.
No public water supply; nearly every house has drilled or dug well; 190 houses within the municipality.

SEWAGE DISPOSAL.

No public sewers.

CANANDAIGUA (Incorporated Village), Ontario County.

Population: 1890, 5,868; 1900, 6,151; 1905, 7,332.
Supply furnished by municipality, obtained from Canandaigua lake; construction begun 1895; original outlay, \$130,000; in 1900 an additional expenditure of \$15,000 was made; test of purity made by State Health Department about 3 times a year with satisfactory results; water is turbid occasionally, after unusual rain storms, slight odor from algae in July and August; one storage reservoir with a capacity of 3½ million gallons; a four days' supply; sanitary condition of watershed controlled by town health board and village health board; possibly a few barnyards pollute supply, none near the intake; 7,500 persons supplied; average daily consumption per capita, 118 gallons; 36 gallons per capita consumption for commercial purposes and 82 gallons domestic, public and wasted; about 1,700 houses and business blocks within municipality; 1,600 ¾" to 1" service taps in use; 517 meters and 167 public and 24 private 4" and 6" hydrants; income per annum, \$20,900.

Water rates: 8 cents per 1,000 gallons. Flat rates: Per annum, kitchen faucets, \$3; kitchen faucets and closets, \$5, and bath basins, closet and kitchen, \$8.

Pumping system: 238,378,525 gallons pumped in 1901, 244,899,668 in 1902, 282,973,981 in 1903, 305,783,198 in 1904 and 324,777,086 in 1905; average dynamic head, 128 pounds; pressure in main, 40 to 128 pounds; 126,304 feet of pipe in use; 12 dead ends, flushed semi-annually from hydrants; cost of repairs per mile of pipe per annum, \$2.84; pumps operated by steam power; duty of pumps for year 1905, including banking fires, 76,180,200 feet pounds, not including fires, 81,612,000 feet pounds; cost per million gallons, pumping station's expenses, \$0.044; cost per million gallons fixed charges, \$0.133; total cost of system at end of fiscal year, February 28, 1906, \$153,662.32; total bonded debt, \$139,000, \$130,000 issued 1895 at 4 per cent., due 1915, and \$9,000 issued 1900 at 4 per cent., \$1,500 due yearly until paid; value of sinking fund, \$41,648.08; village pays \$4,000 for fire protection, sewer flushing, street sprinkling, fountains and all public buildings, parks, etc.

SEWAGE DISPOSAL.

Public sewer system, with a few private sewers; separate systems; 24" discharge pipes, construction begun 1879; system designed by municipal engineer; additions have been made from time to time, no record of cost; 2-3 of locality sewered; 4" iron connecting pipes; 3 manholes per 1,000 feet of sewers, 108 in all; ¼ of sewered locality paved, 2-3 of which is brick and 1-3 macadam; sewage runs into the Canandaigua feeder; sewers cleaned six times per year; \$500 annual charges for operating and maintaining system; there is no separate sewer department, but system is controlled by the village street department, which employs from 5 to 25 laborers, depending upon the season and amount of work; work under direction of a street superintendent.

CANASERAGA (Incorporated Village), Allegany County.

Population: 1890, 659; 1900, 685; 1905, 730.

Supply furnished by municipality, obtained from 6 living springs; construction begun in 1905; original outlay, \$14,100; no additional expenditure; no purification process; no complaints received of quality; one storage reservoir used for

fire protection only; about 50 driven wells used in addition to public supply; the springs from which supply is obtained are stone walled and covered; intake is protected by substantial house; about \$60 is expended annually for examining and controlling water supply; municipality owns the lot, 10 acres, on which springs are situated; one man employed by water commissioners inspects plumbing; no other municipality obtains water from the same shed; no pollution exists; source of supply never failed; about 400 persons are supplied from public supply, 306 from wells; about 200 houses within the municipality, 100 2" service taps in use, 20 bathtubs, 19 water-closets, 147 sinks, basins or set bowl faucets, 25 barn, wall and lawn hydrants, 167 faucets, no meters, 28 fire hydrants, 4" stand pipe, 2½" hose connections; income for year ending March 1, 1906, \$668.40.

Meter rates: 500 gallons or less daily, per 1,000' gallons, 25 cents; 500 to 1,000 gallons daily, 20 cents; 1,000 to 5,000 gallons daily, 15 cents; 5,000 to 15,000 gallons daily, 10 cents, and 15,000 to 40,000 gallons, 5 cents; for dwelling-houses, each family, one faucet, \$4; for each additional faucet, 75 cents; for first bathtub, \$3; each additional, \$2; first water-closet, \$2; each additional, \$1; each urinal, \$1.50.

Gravity system: 90 pounds pressure in main; 6" pipe on main line and 4" pipe for street mains; 5 dead ends cleaned twice a year; total bonded debt at date, \$14,100, issued 1895 at 4 per cent., due 1915; municipality does not pay for fire protection; no separate fire protection system.

SEWAGE DISPOSAL.

No public sewers.

CARTHAGE (Incorporated Village), Jefferson County.

Population: 1890, 2,278; 1900, 2,895; 1905, 3,404.

Supply furnished by municipality; obtained from Black river; construction begun 1895; original outlay, \$50,000; from \$175 to \$1,500 additional expenditures each year; about 150 springs and wells used in addition to public supply; inspection of plumbing is maintained by superintendent at a cost of \$720 and night man at \$550 per annum; 451 ¾", 56 1", 1 1¼", 4 1½" service taps in use, 134 bathtubs, 209 water-closets, 627 washtubs, 847 faucets, 229 sprinklers, 205 meters and 81 2" nozzle hydrants; income in 1905, \$5,587.45.

Pumping system: About 109,500,000 gallons pumped per annum; average static head, 80 pounds; pressures in main from 80 to 40 pounds; 1,250' 12", 2,900' 10", 900' 8", 11,737' 6", 17,600' 4" and 400' 2" pipe in use; 9 dead ends, flushed every month; pumps operated by water; cost of entire water-works to date, \$64,645.56; total bonded debt at date, \$50,000, issued 1892 at 4 per cent., due 1912; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

CATO (Incorporated Village), Cayuga County.

Population: 1900, 350; 1905, 357.

No public water supply. No public sewers.

CATTARAUGUS (Incorporated Village), Cattaraugus County.

Population: 1890, 878; 1900, 1,382; 1905, 1,184.

Supply furnished by municipality; obtained from springs situated 80 feet above reservoir in village; construction begun in 1892; original outlay, \$22,000; additional expenditure of \$8,000 in 1896; no purification process; no tests of purity; no complaints of quality; storage reservoir for fire protection; no other source of supply in addition to public supply; drainage area is on high hills and water is obtained from the rocks; springs have cement covering; watershed owned by municipality; superintendent, appointed by village board, inspects plumbing and distributing system as occasion requires; no other municipality obtains water from the same shed; no pollution; source of supply never failed; about 1,400

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persons supplied from public supply; $\frac{1}{2}$ " service taps in use, no meters, 35 double $2\frac{1}{2}$ " hose hydrants; annual income, \$2,500; gravity system; 100 pounds pressure in main; 4" pipe from village to springs, 4 miles in village; no dead ends; cost of water-works to date, \$30,000; total bonded debt, \$23,500, issued in 1892 at 4 per cent. to become due in 1914; sinking fund at date, \$1,000; municipality does not pay for use of water for fire protection; surplus from reservoir supplies water for fire protection.

SEWAGE DISPOSAL.

Private sewerage and cesspools; separate system; sewage not treated.

CAZENOVIA (Incorporated Village), Madison County.

Population: 1890, 1,987; 1900, 1,819; 1905, 1,756.

Supply furnished by municipality; construction begun in 1890; original outlay, \$33,000; in 1891 additions were made at a cost of \$8,000; no complaints received of quality; one reservoir, 8 miles from village, holds 8,000,000 gallons, and 9 driven wells, 5 4", 1 3", 2 $1\frac{1}{4}$ " and 1 1" are used in addition to public supply; drainage area, 405 acres; watershed is farming property, controlled by water commissioners; 10 acres of watershed owned by municipality; no inspection of plumbing and distributing system; labor is performed by licensed plumbers; no other municipality obtains water from the same shed; source of supply never failed; about 1845 persons supplied from public supply; 537 houses within municipality; 300 $\frac{1}{2}$ " and 69 $\frac{3}{4}$ " service taps in use; meters are used; no record of bathtubs or closets; 47 4" 2-nozzle hydrants; income per year, \$2,988.59.

Meter rates: Per annum, 20 cents per 1,000 gallons for 60,000 or less, 16 cents from 60,000 to 180,000, 12 $\frac{1}{2}$ cents from 180,000 to 300,000, 10 cents from 300,000 to 480,000, 8 cents from 480,000 to 720,000, 7 cents from 720,000 to 960,000, 6 cents from 960,000 to 1,200,000 and 5 cents per 1,200,000 or over; single faucet in house, \$5 per annum; each additional faucet, \$1; laundry tubs, set of three or less, \$3; bathtub, \$3; each additional, \$2; water-closet, \$3; each additional, \$1.50; urinal, \$2; each additional, \$1.50; range boiler, \$1.

Both gravity and pumping system; 55,000 gallons pumped daily; average static head, 200'; pressures in main, from 43 to 80 pounds; 10-8-6 and 4" pipe in use; 7 dead ends, cleaned every three weeks for eight months; pumps operated by water power; cost of entire water-works to date, \$49,583; total bonded debt, \$41,000, \$33,000 issued 1890 at 3 $\frac{1}{2}$ per cent., due 1910, and \$8,000 issued 1891 at 4 per cent., due 1911; municipality pays annually \$737.50 for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate system; 18" discharge pipes; construction begun in 1894; original expenditure, \$31,000; all the locality is sewered; 349 4" and 5" house connections; sewage finally disposed of into Chittenango creek; cost of entire sewerage system, \$31,000; cleaned by automatic flush tanks, flushed twice per year from hydrants at a cost of \$2 per mile. Total bonded debt, \$31,000, issued 1895 at 4 per cent., due 1915; \$75 per year cost of operating and maintaining entire system.

CHAMPLAIN (Incorporated Village), Clinton County.

Population: 1890, 1,275; 1900, 1,311; 1905, 1,400.

Supply furnished by municipality; obtained from Great Chazy river; construction begun in 1897; original outlay, \$20,000; in 1903 250' 4" pipe added and one hydrant; no purification process employed; no tests made of purity; a few complaints on account of eel grass coloring water in August; water is pumped direct from river into the service mains; no other sources of supply in addition to public supply; no expenditure for examining and controlling purity; no portion of shed owned by municipality; water superintendent inspects plumbing and distributing system; no rain-gauge records kept; no other municipality obtains water from same shed; no pollution; average daily yield not known; source has never failed; all persons supplied from public system; 90 gallons average daily consumption per capita; 235 houses within the municipality, including 15 stores

and offices; 9 1", 70 ¾", 161 ½" taps in use; 39 bathtubs, 73 water-closets, 140 washtubs, 300 faucets; no meters; 4 6" bottom connection, 3 way hydrants and 39 4" bottom connection 2 way hydrants; annual income, \$2,400.

System pumping about 100,000 gallons per day; average static head of pumps 20 pounds; average dynamic head not known; pressure in main from 10 to 35 pounds; 14,159' 4", 6,385' 6" and 7,980' 8" pipe in use; six dead ends, cleaned every week in summer; account of cost of repairs per mile of pipe not kept separate; pumps operated by water; no coal used except to heat power house; cost of entire works to date, \$23,000; total bonded debt in 1897, \$20,000, at 4 per cent., due 1922, 1923, 1924, 1925 and 1926, in \$4,000 payments; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Private sewer system; sewers installed privately many years ago; no engineer; original expenditure not known; about 1-3 of the area of the locality sewered; 4" connections; no surface connections to sewers; no manholes; no pavements; part of the streets are macadamized; no further construction of sewers contemplated; sewage finally disposed of into the Great Chazy river; no sewage treated or pumped; no bonded debt.

CHARLOTTE (Incorporated Village), Monroe County.

Population: 1890, 930; 1900, 1,400; 1905, 1,834.

Supply furnished by municipality; obtained from Lake Ontario; construction begun 1899; original outlay, \$25,000; additions since amounting to \$3,000; water filtered through sharp sand, obtained on lake shore; purification plant same as originally installed; one clear water basin, for storage, capacity of 100,000 gallons; one filter bed (settling), capacity of 100,000 gallons; none covered; about ½ acre of land owned by municipality; the superintendent inspects plumbing system at a cost of \$1,200 per year; 2,024 persons supplied from public supply and 648 from other sources; average per capita consumption, 79 gallons, of which 26 gallons are used for domestic purposes, 49 for commercial and industrial purposes and 4 for public purposes; 52 hydrants in use; income in 1905, \$3,053.44, of which \$1,017 by meter.

Meter minimum rate, \$5; 14 cents per 1,000 gallons; kitchen faucet, \$4; each additional, \$2.

System pumping: 45,625,000 gallons pumped in 1905 and 51,100,000 pumped in 1906; average static head, 69 pounds; pressures in main from 40 to 79 pounds; 8" to 1" pipe in use; 18 dead ends, cleaned twice a year, but oftener if necessary; pumps operated by steam; cost of entire water-works to date, \$28,000; total bonded debt, \$22,000, issued 1898 at 4½ per cent.; \$1,000 due 1903, and \$1,000 each year thereafter, including 1928; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public house sewers; construction begun 1895; original expenditure, \$15,000; 9-10 of locality sewered; 379 5" house connections; 6 8" surface connections; 3 manholes per thousand feet, 22 in all; sewage finally empties into Genesee river; cost of sewerage system, \$15,000; sewers cleaned automatically; total bonded debt, \$15,000, issued 1895 at 4½ per cent., due 1915; sinking fund at date, \$6,647.50; annual charges for operating and maintaining system, \$547.06.

CLAYTON (Incorporated Village), Jefferson County.

Population: 1890, 1,748; 1900, 1,913; 1905, 1,918.

Supply furnished by municipality; obtained from St. Lawrence river; construction begun in 1901; original outlay, \$27,000; extension of 1 mile in 1903; no purification process; no complaints of quality; 1 stand pipe with a capacity of 250,000 gallons; not more than 10 wells used in addition to public supply; engineer and street commissioner examine all plumbing before water is turned on, at an annual cost of \$600; 1,965 persons supplied from public supply;

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average consumption per capita from 46 to 56 gallons; in winter, waste is great; 400 houses within municipality, 380 $\frac{3}{4}$ " service taps, 108 bathtubs, 281 water-closets, 386 washtubs, sinks and basins, 602 faucets, no meters and 49 4" hydrants; annual income, \$3,670.

Meter rates: \$5 first faucet; each additional, \$1.

Pumping system: 95,024,000 gallons pumped per annum; 45 pounds pressure in main when full, 37 $\frac{1}{2}$ pounds average; 46 dead ends, cleaned 5 times yearly; 1 flush tank, discharging 10 times in 24 hours; repairs per mile of pipe averaged about \$4 for the past 5 years; pumps operated by steam; cost of entire water-works to date, \$31,800; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; capacity of discharge pipes about 257,600 gallons per day; 400 6" house connections; 115 8" catch basins; 84 manholes; sewers cleaned 5 times a year by street commissioner.

CHERRY CREEK (Incorporated Village), Chautauqua County.

Population: 1890, 676; 1900, 701; 1905, 634.

No public water supply.

CLIFTON SPRINGS (Incorporated Village), Ontario County.

Population: 1890, 1,297; 1900, 1,607; 1905, 1,586.

Supply, furnished by municipality; construction begun in 1896; original outlay, \$50,000; \$1,000 additional expenditure since in extensions; no purification process; no complaints of quality; one storage reservoir with capacity of 3,000,000 gallons, 1 receiving reservoir, covered, with capacity of 10,000 gallons, and 1 distributing reservoir, covered, with capacity of 10,000 gallons; no source of supply other than public supply; shed not owned by municipality; no other municipality obtains water from same shed; no pollution; source of supply never failed; practically entire population supplied from public supply; 350 houses within the municipality, 139 meters; 58 6" hydrants; income in 1905, \$3,272.

Minimum water rate, \$6 per annum; when annual consumption exceeds 20,000 gallons, 15 cents per 1,000 gallons; large consumers, 8, 9 and 10 cents per 1,000 gallons.

Gravity system; pressure in main from 70 to 100 pounds; 4 dead ends, cleaned monthly; total bonded debt at date, \$50,000, issued 1896 at 4 per cent.; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

No sewers.

COBLESKILL (Incorporated Village), Schoharie County.

Population: 1890, 1,822; 1900, 2,827; 1905, 2,158.

Supply furnished by municipality; construction of water-works begun 1886; original outlay, \$65,000; additions of pipe, \$500 and gatehouse at \$5,000. Water subject to purification process; gravel and sand filter; present plant installed the same as original; chemical tests made of the purity of the water by State chemist and pronounced pure; no complaints received concerning turbidity, odor, etc., of the water; capacity of various reservoirs about 113,000,000 gallons; no other supply in addition to the public supply; extent of drainage area about 500 acres; sanitary condition of watershed controlled by town board of health; no part of the watershed is owned by municipality; no rain-gauge records kept; no gaugings; no other municipality obtains water from the same watershed; no pollution exists above the intake point. Service taps in use, 322, average size, $\frac{3}{4}$ -inch; number of bathtubs, 223; number of water-closets, 250; total number of faucets, 1,200 to 1,500; no meters in use; 65 4-inch hydrants; annual income, \$6,500; water system, gravity; average pressure in the main, 82 pounds; sizes of pipe 12-inch, 10-inch, 8-inch, 6-inch, and 4-inch; six dead ends, cleaned four or five times a year; cost of the entire water-works to date, about \$75,000; total bonded

debt at date, \$37,000, \$3,000 payable annually from February 1, 1906, to February 1, 1910; 3 per cent. interest; \$4,000 annually, 1911 to 1915, interest 3½ per cent.; \$5,000, 1916, interest 3½ per cent.; no sinking fund; municipality does not pay for the use of water for fire protection; no separate water supply for fire protection; sewage disposal; house sewers in existence and storm sewers in course of construction; construction of sewers first begun in 1892; original expenditure, \$23,500; three-fourths of the area of the locality is sewerized; number of house connections, 247; number of surface connections to sewers, none; about 5 manholes per thousand feet of sewers; total number of manholes, 94; none of the area of sewerized locality at present paved, but a portion to be paved this summer; final disposal of the sewage into creek; no purification plant; sewers cleaned twice a year; none of the sewage pumped; no bonded debt; annual charges for operating and maintaining system about \$35.

COCHOCOTON (Incorporated Village), Steuben County.

Population: 1900, 879; 1905, 826.

Supply furnished by municipality obtained from springs and wells; springs are located on private lands and wells on land owned by village; construction begun in 1892; original outlay, \$25,000; additional expenditure of \$5,000 in 1900; no purification process; tests of purity made each year by the village health physician and show satisfactory results; no complaints of quality; one storage reservoir with a capacity of 200,000 gallons, not covered; a few wells used in addition to public supply; drainage area probably 400 acres; no expense incurred for examining and controlling purity of water supply except health physician; one person is employed with general supervision of the water system; no other municipality obtains water from the same shed; the spring supply nearly failed in 1898 and 1899; about 900 persons are supplied from public supply, 50 from other sources; 300 houses within municipality; 500 ½-inch service taps, 12 bathtubs, 12 water-closets, 350 washtubs, sinks, and basins, 500 faucets; no meters; 25 6-inch hydrants; annual income, \$750; water rates, \$3 for first faucet, and 50 cents for second faucet; gravity and pumping systems; 5 dead ends, cleaned every two months; pumps operated by steam; cost of entire water-works to date, \$30,000; \$25,000 bond, due in 1915, at 3½ per cent.; \$4,000 bond, payable \$500 yearly, at 4 per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers.

COLD BROOK (Incorporated Village), Herkimer County.

Population: 1905, 318.

No public water supply.

COLD SPRING (Incorporated Village), Putnam County.

Population: 1900, 2,067; 1905, 2,339.

Supply furnished by municipality obtained from brook; construction begun in 1895; original outlay, \$50,000; pipe extensions in 1896, 1900 and 1902; no purification process; test made of purity before site was chosen; complaint of quality in summer of 1897 when water had unpleasant odor, due to new reservoir, since then very little complaint; one storage reservoir with a capacity of 12,000,000 gallons, not covered; also two storage reservoirs on head waters of brook; these belong to the West Point foundry and the water from the foundry ponds can reach the foundry only through the storage reservoir of the village, thence by two channels, one the spillway, the other the 10-inch pipe line leading to the village; this line is connected by a 6-inch line with the foundry, giving the latter thus all the water in the brook, except that consumed or wasted. The village and the foundry are thus in partnership, the foundry getting pressure and the village in return being granted free water up to 60,000 gallons a day, and at \$5 per 1,000,000 gallons for all in excess of that amount; there are two cisterns in addition to public supply. These are filled from the fountain head spring within

the village and supplied with hand pumps; they are gradually being abandoned; drainage area, $4\frac{1}{2}$ square miles; sanitary condition of water-shed inspected by the Board of Water Commissioners; \$5 per month is expended for cleaning barnyard near the upper part of brook; no portion of watershed owned by municipality; Superintendent of Public Works inspects plumbing at a cost of \$200 per annum; no other municipality obtains water from the same shed above the intake; the only pollution is from the barnyard referred to; supply never failed; 2,300 persons supplied; 30 gallons average consumption per capita; 650 houses within municipality, 425 $\frac{1}{2}$ -inch, $\frac{3}{4}$ -inch and $\frac{5}{8}$ -inch service taps in use, 60 bathtubs, 75 water-closets, 500 washtubs, sinks and basins, 600 faucets, 200 meters and 1-1 nozzle, 48-2 nozzle and 10-3 nozzle hydrants; income per annum, \$8,200; first faucet for house, \$5, each additional, \$1; laundry tubs, set of three or less, \$3; bathtub, \$8, each additional, \$2; water-closet, \$3, each additional, \$2, and urinal, \$2, each additional, \$1.50; gravity system; 30 to 115 pounds pressure in main; 11,600 feet 10-inch, 2,718 feet 8-inch, 15,150 feet 6-inch and 200 feet 4-inch pipe in use; 8 dead ends opened frequently about once a month; annual cost of maintaining system, \$500; cost of entire water-works to date, \$51,500; total bonded debt, \$50,000, issued 1895 at 4 per cent, due 1925; sinking fund at date, \$5,896.45; municipality does not pay for fire protection.

The village of Cold Spring also supplies water to the inhabitants of the village of Nelsonville. This is done with the consent of the J. B. & J. M. Cornell Co., who are the successors of the West Point Foundry. The rate charged is 50 per cent. advance on Cold Spring rates, and this extra 50 per cent. is collected by the village of Cold Spring and paid over to the J. B. & J. M. Cornell Co.

At present there are 41 water-takers in village of Nelsonville, and the revenue from them is about \$350 per year, which is included in income noted above. Nelsonville is below the Cold Spring intake. The population of Nelsonville is about 700. Quantity used known as it is not metered.

CONSTABLEVILLE (Incorporated Village), Lewis County.

Population: 1900, 450; 1905, 447.

Supply furnished by municipality, obtained from springs; construction begun 1906; original outlay, \$17,193.24; one storage reservoir, with a capacity of 1,000,000 gallons; private springs; wells used in addition to public supply; plumber inspects plumbing and distributing system; about 70 persons supplied from public supply; 133 houses within municipality, 30 $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch service taps in use, 30 faucets and 20 $2\frac{1}{2}$ -inch hydrants; income per annum, \$300; water rates per annum for dwelling houses, one faucet, \$5; each additional, \$1; closet, \$2; each additional, \$1; bath, \$2; each additional, \$1; meter rates per thousand gallons: first 15,000 gallons, \$5; next 10,000 gallons, 40 cents; next 10,000 gallons, 30 cents; from 35,000 to 70,000 gallons, 25 cents; from 70,000 to 100,000 gallons, 20 cents, and all over 100,000 gallons, 15 cents; gravity system; pressures in main, from 75 to 120 pounds; 12-inch, 8-inch, 6-inch, 4-inch, and $2\frac{1}{2}$ -inch pipe in use; cost of entire water-works to date, \$18,500; total bonded debt, \$19,000; \$17,000 issued 1905, and \$2,000 issued 1906.

SEWAGE DISPOSAL.

No public sewer system; private surface disposal and cesspools.

CORNING (City), Steuben County.

Population: 1890, 8,550; 1900, 11,061; 1905, 13,515.

Supply furnished by Heermans & Lawrence, but will be operated by the city after January 1, 1907; construction begun in 1870; original outlay, \$20,000; additional expenditure by city of \$46,236, and of \$84,000 by Heermans & Lawrence; no purification process; test of purity made in 1903 for Heermans & Lawrence, and also for Board of Health; complaints are received of quality in warm weather, due to growth of algae; one uncovered reservoir for distribution of 2,000,000 gallons capacity; about 2,100 wells used in addition to public supply; supply is obtained from springs; no portion of water-shed owned by municipality; no other municipality obtains water from the same shed; source of supply never

failed; about 9,010 persons supplied from public supply, and 4,505 from other sources; 3,100 houses within municipality, 1,000 $\frac{3}{4}$ -inch service taps in use, 600 or 700 bathtubs, less than 100 washtubs, less than 1,000 sinks, 300 meters and 150 4-inch and 6-inch hydrants; meter rates for the first 10,000 gallons, 5 cents per 100 gallons; next 10,000, 4 cents; next 80,000, 3 cents, and for all over 100,000, 2 cents; kitchen hydrant, cold water only, \$8; hot and cold water, \$10; washstands, cold water only, \$8; hot and cold water, \$4; bathtubs, cold water, \$3; hot and cold water, \$4; water-closets, self-closing, \$4, and fixed wash-tubs, \$2; for each additional washstand, bathtub, water-closet and fixed wash-tub, one-half the above rates; pumping system; 110 pounds per square inch; average static head, 185 pounds per square inch; average dynamic head; pressure in main, 110 pounds at pump station to 10 pounds on Fifth street; 4-inch to 16-inch pipe in use; 20 dead ends, no systematic cleaning; pumps operated by steam; cost of entire water-works to date, \$100,236; total bonded debt, \$10,000, issued July 1, 1903, maturing July 1, 1949, at 4 per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate system south side, and combined system north side of Chemung river; sanitary discharge pipes 18-inch, 1 per cent. grade and storm 4 to 6 feet, 1 per cent. grade; construction begun about 1888; original expenditure, \$60,000; additional expenditure of \$27,000, in 1903, to combined system, and \$24,000, in 1905, to storm and sanitary; total length of sanitary sewer, south side of the river, 62,790 feet; combined, north side of the river, 9,122 feet; storm sewer, south side, 26,516 feet; total length of streets, $3\frac{3}{4}$ miles; nearly all houses connected; 4-inch to 6-inch house connections; 157 catchbasins on the south side and 24 catchbasins on north side; 8 to 12-inch inlets; manholes average 283 feet apart; number of manholes, south side, 222; storm sewers, south side, 64; combined, north side, 64; macadam pavement, .21 miles; medina stone, .83 miles, and brick, .94 miles; sewage finally empties in the Chemung river; cost of sewerage system to date, \$90,000; no systematic cleaning of sewers; total bonded debt, \$90,000; \$50,000 issued July 1, 1887, at 4 per cent.; \$5,000, due July, 1908; after that, \$5,000 annually; \$40,000, issued July 1, 1903; \$1,000, due July 1, 1949; after that, \$1,000 annually; \$500 a year expended for maintaining system.

CUBA (Incorporated Village), Allegany County.

Population: 1890, 1,386; 1900, 1,502; 1905, 1,519.

Supply furnished by municipality, obtained from springs owned by the village of Cuba, N. Y.; construction begun in 1889; original outlay, \$33,000; additional expenditure of \$2,000 in 1899; no purification process; tests of purity were made 4 times during the past year; analyses showed water pure; no complaint; one storage reservoir with a capacity of 800,000 gallons for fire protection, not covered; about 40 wells used in addition to public supply; a small lot around each spring is owned by municipality; 2 men, superintendent and laborer, inspect plumbing and distributing system at a cost of about \$500 annually; no other municipality obtains water from the same shed; source of supply never failed; 1,400 persons supplied from public supply, 200 from wells; 450 houses within municipality, 120 bathtubs, 120 water-closets, 175 washtubs, sinks and basins; 1,100 faucets and 8 meters; annual income, by meter, \$500; otherwise, \$3,000; meter charges for livery barns and hotels, 15 cents per 100 cubic foot; railroad, 6 cents per 1,000 gallons; system, gravity; 60 to 90 pounds pressure in mains; 3 dead ends, cleaned each month; total bonded debt at date, \$22,000, at $3\frac{1}{2}$ per cent.; \$1,000 issued 1889, due July, 1905; \$1,000 issued 1899, due October, 1906; \$2,000 issued 1899, due October, 1907, and \$18,000 issued 1889, due July, 1909; municipality pays \$1,000 per year for fire protection; separate supply: surplus water is taken by gravity to storage reservoir.

SEWAGE DISPOSAL.

No public sewers; sewage empties into cesspools.

SECOND ANNUAL REPORT OF THE**DANNEMORA (Incorporated Village), Clinton County.**

Population: 1905, 633.

Supply furnished by municipality, derived from spring brooks; construction of water-works begun during the summer of 1901; original outlay, \$12,000; in 1902 additional expenditure of \$2,000; no purification process employed; no complaints received of purity; one reservoir; no families live on the line of the brooks; no expenditure for examining purity of supply; the land containing the dam is owned by municipality; the Board of Water Commissioners inspect the plumbing and distributing system; no rain-gauge records kept; no other municipality obtains water from same' shed; no pollution exists; average daily yield not known; during the dry season of 1904 the supply was insufficient for about a month; about $\frac{1}{2}$ of the inhabitants of the village are supplied from public supply; 95 houses within the municipality, 25 bathtubs, 60 closets, 14 hydrants; income, about \$1,000 per year; no meters; system, gravity; pressure in main about 145 pounds; 9,500 feet 6-inch pipe, 1,000 feet 4-inch pipe in use; not over \$50 expense to repair pipe since water-works were put in; cost of entire water-works to date, \$14,000; total bonded debt, \$11,900; \$10,200 was issued in 1901, at 3 $\frac{1}{2}$ per cent.; \$1,700 issued in 1902, at 4 $\frac{1}{2}$ per cent.; sinking fund at date, \$950; no separate water supply for fire protection.

SEWAGE DISPOSAL.

The village sewers all empty into State sewers; no separate storm and house sewers; about $\frac{1}{2}$ of the village is sewerized; sewage finally empties into a brook which flows to the river.

DEPEW (Incorporated Village), Erie County.

Population: 1900, 3,379; 1905, 3,535.

Supply furnished by Depew and Lake Erie Water Co., obtained from Lake Erie at Stony Point, south of Buffalo; intake extends considerable distance into the lake; construction of water-works begun about 6 years ago; system, pumping; number of dead ends not known; municipality pays \$5,000 per year for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Public sewers have been constructed; house sewer system is extensive, and also storm sewers; original cost, \$80,000; \$20,000 since additional; 6-inch connecting pipes in use; chemical disposal plant disposes of sewage; septic tank at the disposal plant, all but the surface water being subjected to purification treatment; no laboratory maintained to test efficiency of treatment; purification plant installed in 1905; original cost, \$22,000; no sewage pumped; original bonded debt, \$102,000, at 3 to 4 per cent., now \$84,000, \$5,000 being paid off each year; sinking fund at date, \$1,497.52.

DOLGEVILLE (Incorporated Village), Herkimer and Fulton Counties.

Population: 1900, 1,915; 1905, 2,245.

Supply owned and operated by municipality, source being creek; reservoir property owned by village with the perpetual right to take 2,500,000 gallons daily; construction begun in 1894; original outlay, \$70,000; additions, 1906, about 2,900 feet 2-inch galvanized iron pipe; cost \$800; no purification process; water sent by health officer to State Department every month during summer season; drainage area, 3 square miles; 2 acres of water-shed owned by municipality; supply never failed; about 2,100 persons now supplied; 440 houses within municipality; number and size of service taps now in use. 5 $\frac{1}{4}$ -inch taps, 390 $\frac{1}{2}$ -inch taps: 98 bathtubs, 232 water-closets, 189 washtubs, sinks and basins, 725 faucets, about 58 4-inch 2-nozzle hydrants; annual income, \$5,050.51. Schedule of water rates: one faucet, one family, \$4; each additional, \$1; one bathtub, \$2.50; each additional, \$1.50; one water-closet, \$2; each additional, \$1. System, gravity; ranges of pressure in main, 140 to 160 pounds in village; pipes in use, 2, 4, 6, 8, 10.

12-inch; 5 dead ends, cleaned twice during summer. Total bonded debt, \$64,000; \$50,000 issued July 1, 1894, due July 1, 1923; \$14,000 issued April 20, 1896, 4 per cent.; \$1,000 due annually. All the above is a municipal debt; when income not sufficient to meet expenditures, a hydrant tax has been levied on taxable property; tax levied in 1906, \$550; rents hereafter will meet expenditures.

SEWAGE DISPOSAL.

Sewer system in process of construction; sewage now separate system; construction begun in 1904; expenditure estimated at \$42,000; connections, 4-inch; surface water is carried in the street gutters to the various water courses running through the village; one manhole per 540 feet of sewers; total manholes, 58; none of sewer'd locality is paved; total length of sewers about 31,000 feet; 8 flush tanks in use; final discharge into septic tank, and thence into Canada creek; will be subject to purification; purification plant not yet in use, constructed 1904; original cost, \$7,400; total bonded debt, \$42,000, issued July 1, 1904; \$1,500 due annually, beginning in 1907, interest 3.90 per cent; no sinking fund.

DRYDEN (Incorporated Village), Tompkins County.

Population: 1890, 663; 1900, 699; 1905, 749.

Supply furnished by municipality; construction begun in 1892; original outlay, \$25,000; no complaints; one reservoir, 100 by 80 by 10 feet, with a capacity of 500,000 gallons; 98 wells used in addition to public supply; supply never failed; 250 persons supplied; 149 houses within municipality; 45 $\frac{1}{2}$ -inch and 4 $\frac{3}{4}$ -inch service taps in use, 32 bathtubs, 37 water-closets, 14 meters and 40 8-inch hydrants; income per year, \$650; meter rates, 5 cents per 100 gallons; one faucet, \$5; each additional, \$2.50 per year; house with full plumbing, \$16 per year; gravity system; pressures in main, 70 to 80 pounds; 6 dead ends, cleaned once a month; cost of entire water-works to date, \$25,000; total bonded debt, \$19,000, issued 1893, at 4 per cent.; \$5,000 due in 1910, \$7,000 in 1916 and \$7,000 in 1922; sinking fund at date, \$2,000; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

DUNDEE (Incorporated Village), Yates County.

Population: 1890, 1,200; 1900, 1,281; 1905, 1,282.

No public water supply.

EARLVILLE (Incorporated Village), Madison and Chenango Counties.

Population: 1890, 636; 1900, 711; 1905, 765.

Supply furnished by municipality, obtained from springs; construction begun in 1893; original outlay, \$27,000; in 1898 \$300 additional expenditure, and in 1905 \$400; water purified by gravel filter; no test of purity; complaints received of quality in July and August; one reservoir, with capacity of 8,000,000 gallons; no source of supply in addition to public supply; drainage area, 100 acres; shed not owned by municipality; superintendent of works inspects plumbing; no other municipality obtains water from the same shed; drainage from one farm pollutes supply above the intake point; source of supply never failed; about 1,000 persons supplied from public supply; 240 houses within the municipality; 224 $\frac{1}{4}$ -inch service taps in use; 44 bathtubs; 50 water-closets; 22 wash-tubs; 40 faucets; 28 double hydrants, 2 $\frac{1}{2}$ -inch hose connections, 400 feet apart; income, \$1,600 per year; one faucet per house, \$5; each additional, \$2; laundry tubs, \$4; bathtub, \$4; each additional, \$2.50; water-closet, \$4; each additional, \$2; urinal, \$3; each additional, \$2; range boiler, each \$1.50; gravity system; average static head, 112 pounds per square inch; 6 miles 12-inch, 8-inch, 6-inch and 4-inch pipes in use; 3 dead ends, cleaned four times a year; cost of entire works to date, \$27,700; total bonded debt at date, \$23,000, issued in 1893, at 4 $\frac{1}{2}$ per cent.; sinking fund at date, \$1,000; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SECOND ANNUAL REPORT OF THE

SEWAGE DISPOSAL.

No sewers; final disposal of sewage by cesspools in sand.

EAST ROCKAWAY (Incorporated Village), Nassau County.

Population: 1900, 739; 1905, 877.

No public water supply; Queens County Water Co. has a few mains in the village.

ESPERANCE (Incorporated Village), Schoharie County.

Population: 1890, 274; 1900, 290; 1905, 231.

No public water supply.

FAIRHAVEN (Incorporated Village), Cayuga County.

Population: 1890, 738; 1900, 610; 1905, 660.

No public water supply; supply obtained from private wells; about three-fourths of all houses and lots have wells.

SEWAGE DISPOSAL.

No public sewers.

FAYETTEVILLE (Incorporated Village), Onondaga County.

Population: 1890, 1,140; 1900, 1,364; 1905, 1,380.

Supply furnished by municipality, obtained from springs; municipality owns the land on which springs and reservoir are located; water from reservoir used only in time of low water or in case of fire; construction begun 1892; original outlay, \$29,000; \$2,000 has been expended since; springs are stone-walled, have concrete bottoms and are housed; source of supply has never failed; daily consumption per capita about 24 gallons; 287 taps in use, sizes $\frac{1}{2}$, $\frac{3}{4}$ and 1-inch; 350 faucets; 101 meters; 42 Ludlow 2-nozzle hydrants; annual income, by meter, \$962.84; otherwise, \$898.91. Water rates: one faucet per house, six rooms or less, \$5; each additional six rooms, \$1.50; each additional faucet after first, \$2; bathtub, \$4; each additional, \$2.50; water-closet, \$4; each additional, \$2. Meter rates: 3,600 cubic feet per year for one family use; minimum charge, \$5 per year; monthly meter rates, 1,900 cubic feet or less; 14 cents per 100 cubic feet; grading thence to $3\frac{1}{2}$ cents per 100 cubic feet when using 57,100 cubic feet or more; gravity system; pressure in main from 60 to 115 pounds; length of pipes about 5 miles, sizes 10, 8, 6 and 4-inch pipes; cost of water-works to date, \$31,000; total bonded debt to date, \$29,400.

SEWAGE DISPOSAL.

No public sewer system.

FORESTPORT (Incorporated Village), Oneida County.

Population: 1905, 689.

Supply furnished by municipality; construction begun in 1904; no purification process; no complaints received of quality; one storage reservoir, with a capacity of 500,000 gallons, not covered; water-shed not owned by municipality; no inspection of plumbing; no other municipality obtains water from the same shed; no pollution; supply never failed; 180 houses within the municipality: 60 $\frac{1}{2}$ -inch service taps in use; 13 bathtubs; 17 water-closets; 110 faucets; no meters and 24 4-inch hydrants; income, \$577 per year; gravity system; pressure in main about 60 pounds; 0,400 feet 6-inch vitrified, 2,342 feet 8-inch, 340 feet 6-inch, 16,794 feet 4-inch and 2,375 feet 3-inch castiron pipe in use; 5 dead ends; cost of entire water-works to date, \$18,658.64; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Private sewers.

FORT COVINGTON (Incorporated Village), Franklin County.

Population: 1890, 870; 1900, 822; 1905, 854.
No public water supply.

SEWAGE DISPOSAL.

One sewer 800 feet long has been constructed for surface water only; construction begun about 10 years ago; original expenditure, \$400; 8 surface connections; 3-inch pipe in use; total number of manholes, 10; final disposal of sewage into Schroon river.

FREDONIA (Incorporated Village), Chautauqua County.

Population: 1890, 3,399; 1900, 4,127; 1905, 5,148.

Supply furnished by municipality; construction begun in 1884; original outlay, \$85,000; additional expenditure of \$20,000 in 1895; no purification process; tests of purity every spring; no record kept; complaints received of quality in spring; one settling reservoir of 9,000,000 gallons; one storage reservoir of 90,000,000 gallons; none covered; a few wells and springs are used in addition to public supply; sanitary condition of water-shed controlled by supervision of watchman at reservoir at a salary of \$160 per annum; about 60 acres of watershed owned by municipality; superintendent of water-works inspects plumbing and distributing system at a salary of \$330 per annum; no other municipality obtains water from the same shed; surface drainage pollutes the supply; source of supply never failed since second reservoir was built; about 5,000 persons supplied from public supply; 1,500 houses within the municipality; 1,200 $\frac{1}{2}$ -inch service taps in use; 340 bathtubs; 464 water-closets; 366 washbasins; 1,200 sinks; 3 meters; 65 3-inch hydrants; income per year, \$10,400; water rates for dwellings for one family, first faucet, \$4; each additional, 50 cents; bathtub, \$2; each additional, \$1.50; water-closets, \$2; urinals, \$1; system, gravity; static head from 40 to 160 pounds; about 50 dead ends, cleaned every two months or less; cost of entire water-works to date, \$125,000; total bonded debt at date, \$62,500; \$85,000 was issued 1885, \$2,500 payable annually, and \$20,000 issued 1895, payable after above issue is liquidated, all at 4 per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; construction begun in 1885; expense borne by abutting owners; nothing added to original system, except construction in various streets annually; one-half of locality sewered; 4-inch house connections, surface connections not extended; 4 manholes per thousand feet; a small area of the sewered locality paved; sewage finally empties into Canadaway creek, below village limits; sewers cleaned about once every two months; \$300 annual charges for operating and maintaining system.

FRIENDSHIP (Incorporated Village), Allegany County.

Population: 1890, 1,369; 1900, 1,214; 1905, 1,259.

Supply furnished by municipality; construction begun in 1896; the plant was purchased from the Friendship Water Company in 1906, at a cost of \$28,000; in 1900 an additional expenditure of \$8,000 was made; two reservoirs, one with a capacity of 500,000 gallons and one with a capacity of 25,000 gallons; springs, one artesian well and 5 driven wells are used in addition to public supply; drainage area, 200 acres; average daily yield, 130,000 gallons; supply never failed; 1,000 persons supplied; average daily per capita consumption, 30 gallons; 440 houses within municipality; 83 bathtubs; 107 water-closets; 500 wash-tubs; 157 meters and 50 hydrants; income per year, \$4,000; gravity and pumping systems; average static head, 200 feet; pressure in main, 90 pounds; 4-inch to 8-inch pipe in use; 3 dead ends, cleaned once a month; cost of repairs per mile of pipe, \$5; pumps operated by gas engine; cost of entire water-works to date, \$39,000; total bonded debt at date, \$39,000, issued 1906, at 3.9 per cent. \$1,300 payable annually; municipality pays \$1,000 per annum for fire protection.

SECOND ANNUAL REPORT OF THE

SEWAGE DISPOSAL.

No public sewer system; sewage disposed of by cesspools.

FULTONVILLE (Incorporated Village), Montgomery County.

Population: 1890, 1,122; 1900, 977; 1905, 912.

Supply furnished by Fultonville Water Company (see 1906 Report) Instituted in 1903, and by Starin Place Water-works; construction begun in 1891.

The following relates to Starin Place Water-works: In 1894 about 1,500 feet 2½-inch wrought iron pipe was added one covered reservoir, 20 feet by 9 feet by 6 feet; spring furnishes an amount daily that would flow through a pipe 1¼ inches in diameter; 30 houses supplied; 150 houses within municipality; income per annum from \$200 to \$250; water rates, \$5 to \$10 per house per annum; gravity system; very little pressure in main, scarcely any at second floors; length of pipe in use about 4,000 feet 2½-inch wrought iron pipe from reservoir to and around the block, forming a loop; cost of repairs per mile of pipe per annum, \$25.

Fultonville Water Company laid a complete system in 1903 with well, pump, reservoirs, etc.

GALWAY (Incorporated Village), Saratoga County.

Population: 1890, 177; 1900, 177; 1905, 149.

No public water supply.

GENEVA (City), Ontario County.

Population: 1890, 7,557; 1900, 10,433; 1905, 12,249.

Supply furnished by municipality; obtained from Seneca lake and springs upon reservoir grounds; construction of supply from springs begun in 1806; pumps erected in 1887; private corporation taken over by city in 1896, at cost of \$150,000; additional expenditures every year since; no purification process; bacteriological tests of quality occasionally; complaints received of quality occasionally in August and September; one storage reservoir with a capacity of 154,661 gallons, containing about 1½ days' supply; 2 for distribution with capacity of 605,235 and 647,803 gallons, respectively, each containing one day's supply; none is covered; no other source in addition to public supply; the drainage area consists of the basin of Seneca lake; no expenditure for examining and controlling purity of water supply; no portion of shed owned by municipality; plumbing and distributing system inspected by superintendent at \$900 a year; plumber, \$900, and plumber's assistant, \$468 a year; rain-gauge records not available; gauge for lake level installed at pump station in October, 1905; Watkins and Willard Insane Asylum obtain water from same shed; the drainage of Watkins and its salt wells above the intake point from which supply is obtained; average daily yield not known; supply never failed; 9,800 persons supplied from public supply, 3,000 from wells; 44 gallons daily consumption per capita; 14 gallons used daily for domestic purposes per capita, and 31 gallons for commercial and industrial purposes; 2,650 houses within the municipality; 2,260 service taps in use, ranging from ¼-inch to 4-inch; 1,046 bathtub; 2,059 water-closets; 1,287 washubs; 3,127 faucets; 1,913 meters in use, and 238 hydrants; income, by meter, \$17,888.65 in 1904, and otherwise, \$4,486.28; water rates for faucet use only for one family, \$6; one water-closet, when accompanied by faucet use, \$4; for each additional, \$1.50; one bathtub, \$3; for each additional, \$1.50; one urinal in dwelling, \$2; for each set washtubs not to exceed 3 tubs, \$4; one washbasin, \$1; for each additional, 50 cents; meter rates for the first 10,000 gallons or less per month, 20 cents per 1,000 gallons; all over that amount up to 110,000 gallons per month, 10 cents per 1,000 gallons; for 110,000 to 200,000 gallons per month, a lump sum of \$12; 200,000 and upwards, 6 cents per 1,000 gallons. Minimum rates for meter, 42 cents per month; allowance, 2,000 gallons; pumping and gravity system; reservoirs for excess of pumping; 255,934,811 gallons pumped in 1900, 250,872,659 gallons pumped in 1901, 230,803,753 pumped in 1902, 256,681,698 pumped in 1903, 319,373,273

pumped in 1904; about 73,000,000 gallons, not pumped and obtained from springs, enters piping system annually; average static head of pumps, 200 feet; average dynamic head, 220 feet; fire head, 280 feet; pressure in main, from 25 pounds to 90 pounds; 298 feet 1-inch, 383 feet 1½-inch, 1,437 feet 2-inch, 340 feet 3-inch, 16,306 feet 4-inch, 55,173 feet 6-inch, 48,867 feet 8-inch, 16,093 feet 10-inch, 14,205 feet 12-inch and 721 feet 16-inch pipe in use; 8 dead ends, blown out at nearest hydrant when necessary, varying periods of two weeks to six months; cost of repairs per mile of pipe, \$0.134 per year; pumps operated by steam: 25,421,244 foot-pounds, duty of pumps per 100 pounds of coal burned; cost of pumping, \$0.098 per 1,000,000 gallons raised one foot high, figured on pumping station expenses; figured on fixed operating and maintaining expenses, \$0.108; cost of entire works to January 1, 1905, \$203,921.99; bonded debt at date, \$150,000, due 1926, at 4 per cent.; sinking fund at date, \$32,967.90; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate system; three vitrified tile discharge pipes, each 18 inches diameter; grade, 6 inches per 100 feet; capacity, 1,500,000 gallons per day; construction begun in 1895; original expenditure, \$88,000; additional expenditure of \$6,503.13 for extensions; 65 per cent. of locality sewerized; 2,000 5-inch house connections; no surface or ground water is admitted to the sanitary system; 2 manholes per thousand feet of sewers; total number, 200; 57 per cent. of sewerized locality paved; final disposal of sewage by three outlets into deep water in Seneca lake; sewage not treated; cost of sewage system, \$95,132.07; sewers flushed daily by discharge of water from flush tanks; a section about 3,000 feet long was cleaned during the summer of 1905 at cost of \$2,300 per mile; no sewage pumped; bonded debt of \$80,000, issued in 1896, at 4 per cent., due in 1916; also \$8,000, issued in 1898, at 4 per cent., due in 1926; sinking fund at date, \$30,000; one inspector at \$600 per year for operating and maintaining system; other labor and cost of materials, \$1,580.35; number of men employed varies from one to ten, according to kind and amount of work done.

GLEN PARK (Incorporated Village), Jefferson County.

Population: 1900, 494; 1905, 582.

No public water supply; water supplied by wells and cisterns.

SEWAGE DISPOSAL.

No sewers have been constructed; there are ditches and drains to river.

GLOVERSVILLE (City), Fulton County.

Population: 1890, 13,864; 1900, 18,349; 1905, 18,672.

Portion of supply furnished by the Kingsboro Water-works Co.; supply obtained from springs owned by it; construction of the water-works was begun in 1873; original outlay, \$8,000; from \$8,000 to \$10,000 has been expended since; no purification process is employed; no complaints are received of the quality; there are two reservoirs with about 4,000 square feet capacity; no portion of the water-shed is owned by the corporation; no other municipality obtains water from the same water-shed; no pollution exists; source of supply has never failed; ½-inch service taps; 50 bathtubs; 100 water-closets; 200 washtubs; annual income, about \$2,200 by meter; system is gravity; 6 and 3-inch pipe in use; 5 dead ends, cleaned 6 weeks to two months; cost of water-works to date, \$20,000; no bonded debt; municipality does not pay for use of water for fire protection; there is a separate water supply owned by municipality for fire protection.

Gloversville water-works operates in same district (see Report 1906).

GOSHEN (Incorporated Village), Orange County.

Population: 1890, 2,907; 1900, 2,826; 1905, 3,099.

Supply furnished by municipality; construction begun in 1871; original outlay, \$75,000; in 1904 additions were made at a cost of \$10,000; tests were made

a few years ago by Dr. C. F. Chandler, N. Y., and water reported very good; no complaints of quality: 1 reservoir; wells and cisterns are used in addition to public supply; drainage area between 200 and 300 acres; two farmhouses on water-shed, some distance from reservoir; 75 acres of shed owned by municipality; 1 superintendent of water-works inspects plumbing and distributing system, no salary; average daily yield, 370,000 gallons; supply never failed; about 3,000 people supplied; 280 service taps in use; 218 bathtubs; 303 water-closets; 410 washtubs; 276 faucets; income per year, \$6,000; gravity system; pressures in main 47 pounds per square inch; 10-in, 8-inch, 6-inch and 4-inch pipe in use; 4 dead ends, cleaned whenever necessary; cost of entire water-works to date, \$90,000; total bonded debt, \$40,000 at 4 per cent., \$2,000 payable annually; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage drains into a stream running through village.

GOUVERNÉUR (Incorporated Village), St. Lawrence County.

Population: 1890, 3,458; 1900, 3,689; 1905, 4,229.

Supply furnished by municipality; construction begun in 1889; original outlay, \$60,000, additions yearly; no purification process employed; bacteriological test made of water, in April, 1905; no other tests made; complaints received of the quality of the water occasionally, during high and very low water; two stand pipes, 30 feet by 40 feet, 212,000 gallons; private wells throughout the village in addition to public supply; sanitary condition of water-shed not controlled; no expenditure for examining and controlling the purity of the water; no portion of the watershed is owned by the municipality; no rain-gauge records kept; no other municipality obtains water from the same water-shed; no pollution exists; source of supply has never failed; there are 272 service taps in use; 500 bathtubs; 1,330 washtubs; 4 6-inch Tuppel nozzle hydrants; 86 4-inch and 6-inch two-nozzle hydrants; annual income, \$9,000; system is pumping; average dynamic head against which the pumps work, 220 feet; pressure in main, 85 pounds; 13 miles of pipe in use, 4, 6, 8, 10 and 12-inch size; 11 dead ends, cleaned twice a year; pumps operated by electricity; sinking fund to date, \$5,000; municipality pays for use of water for fire protection; no separate water supply system for fire protection.

SEWAGE DISPOSAL.

Public sewers, combined system, general size of connecting pipe, 4 inches; sewage finally disposed in river; no purification treatment; none of the sewage is pumped; no debt.

GRAND VIEW-ON-HUDSON (Incorporated Village), Rockland County.

Population: 1905, 356.

No public water supply.

SEWAGE DISPOSAL.

No public sewers; private sewers and cesspools. Some private sewers empty into Hudson river.

GREENE (Incorporated Village), Chenango County.

Population: 1890, 1,067; 1900, 1,236; 1905, 1,358.

Supply furnished by municipality; obtained from springs; also two private companies, Lyon Iron Works and Brookside Water Company (see Report of 1900): construction begun in 1903; original outlay, \$40,000; \$1,000 additional expenditure in 1903, and \$2,500 in 1904; no purification process; no tests of purity; complaints rarely received of quality; one storage reservoir with a capacity of 350,000 gallons, 6 days' supply; not covered; deep well from Lyon Iron Works used in time of shortage, in addition to public supply; all springs are covered and catch basins locked; from $\frac{1}{4}$ to $\frac{1}{2}$ an acre of ground is owned around each

of the 5 springs; 1 superintendent inspects plumbing system; no other municipality obtains water from the same shed; no pollution; supply fails occasionally, caused by leaks in the pipe used; about 1,000 persons supplied from public supply and about 400 from other sources; average daily consumption, 70 gallons per capita; 335 houses within the municipality, 252 service taps in use; no meters; income about \$2,300 per year; water rates for 1 faucet, \$5, and \$10 for full set of plumbing per year; gravity system; pumped water only used in emergency, amount not known; 60,000,000 gallons enters piping system per year not pumped; pressure in main, 75 to 85 pounds; 3,500 feet 4-inch and 6-inch terra cotta pipe, 4,000 feet 6-inch, 19,084 feet 6-inch, 12,369 feet 4-inch, 5,217 feet 8-inch cast iron pipe and 20,000 feet $\frac{3}{4}$ -inch and 2-inch pipe in use; 6 dead ends, flushed several times a year; cost of repairs to pipe, \$2,300 in 1905; pumps of Lyon Iron Works operated by steam; cost of entire water-works to date, \$45,000; total bonded debt, \$35,000, issued July 1, 1903, at 3½ per cent., payable at rate of \$2,000 yearly to commence July 1, 1906; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Private sewers and cesspools; a few storm catchbasins; 4-inch private house connections; 25 12-inch surface connections; 10 manholes; none of sewered locality paved; sewage discharged into Chenango river; not treated; sewers not cleaned unless clogged; no sewage pumped.

GREENWICH (Incorporated Village), Washington County.

Population: 1890, 1,663; 1900, 1,869; 1906, 1,996.

Supply owned and operated by Greenwich Union Water Works Co., from a spring and brook; construction begun 1887; original outlay, \$35,000; additions until present investment now \$60,000; no purification process; no test of purity; complaints received after heavy rains; water turbid; reservoir for fire purposes, capacity, 7,500,000 gallons; reservoir for daily use, 1,000,000 gallons; water wasting over spillway at all times; wells and cisterns in use; sanitary condition ascertained by frequent inspections; annual expenditure, about \$200 per year. No portion of water-shed is owned by company. Superintendent inspects plumbing; no other help employed except as needed; no pollution exists; supply never failed; 229 service taps in use, of which 80 per cent. are $\frac{3}{4}$ -inch, balance $\frac{1}{2}$ -inch; 92 bathtubs; 194 water-closets; 350 washtubs, sinks and basins; 6 meters; 33 hydrants; annual income, \$5,351.08, of which about \$100 by meter. Schedule of water rates; First faucet, \$6; each additional, \$2; bathtub, \$4; each additional, \$2; water-closet, \$4; each additional, \$2; by meter: 500 gallons or less daily, 50 cents per 1,000 gallons, reducing for large quantities to 20 cents. System, gravity; pressure in main, 110 pounds for fire, 65 pounds for distribution. About 5 miles of 6 and 8-inch pipe in use. Five dead ends, cleaned frequently. Cost of entire water-works to date, \$60,000; total bonded debt at date, \$1,000, due April 1, 1907. Municipality pays for use of fire protection, \$40 per year for each hydrant. There is a separate supply for fire protection, but only one distribution system.

SEWAGE DISPOSAL.

No public sewers; cesspools. Village trustees have made a survey for contemplated construction.

HAMILTON (Incorporated Village), Madison County.

Population: 1890, 1,744; 1900, 1,627; 1905, 1,522.

Supply furnished by municipality, obtained from Spring lake; construction of water-works begun in 1894; original outlay, \$54,000; no expenditure since, except for water meters and tools; purification process employed; sand filter designed by Stanwix Engineering Co., Rome, N. Y.; tests have been made of purity; no details furnished; no complaints received of the quality; Spring lake owned by municipality, covers an area of about 200 acres; about 100 persons use wells in addition to public supply; no rain-gauge records kept; no pollution

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exists; source of supply has never failed; daily consumption per capita about 96 gallons; about 64 gallons per inhabitant used for domestic purposes, 32 for commercial and industrial purposes; 430 houses within the municipality; 234 $\frac{1}{2}$ -inch service taps in use; 12 $\frac{3}{4}$ -inch, 6 1-inch, 8 2-inch and 1 4-inch; 150 meters; 75 double nozzle 4-inch supply pipe, 2 $\frac{1}{2}$ -inch nozzles; annual income from water by meter about \$2,000 a year, \$1,100 a year otherwise. Water rates: Dwellings, 1 family, 1 kitchen faucet, cold water, \$6; each additional hot or cold water faucet, \$3; bathtubs, \$4; water-closets, \$4; for each additional family, above rates charged for each family.

Meter rates: Per quarter, first 1,000 cubic feet, \$2.50, grading to \$1.70 for fifth 1,000 cubic feet, and special rates to larger consumers.

System is pumping; about 54,750,000 gallons pumped per annum; 224 feet average static head of pumps; 230 feet average dynamic head; pressure in main, 90 to 100 pounds; lengths of pipe, 4,000 feet 10-inch, 8,300 8-inch, 16,000 6-inch and 12,300 4-inch; 7 dead ends; pumps operated by steam; duty of the pumps in foot pounds, per 100 pounds of coal, burned 80,000,000; cost of the water-works to date, about \$56,000; total bonded debt at date, \$53,500; municipality does not pay for use of water for fire protection; there is no separate water supply and distribution system for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

HAMMONDSPORT (Incorporated Village), Steuben County.

Population: 1890, 934; 1900, 1,169; 1905, 1,141.

Public supply furnished by municipality, obtained from springs and Lake Keuka; construction begun 1904; original outlay, \$23,000; water is filtered through hard sand, obtained from ordinary gravel and sand banks; sand changed two or three times a year at nominal cost; one test has been made by State Board of Health; one reservoir, with a capacity of 500,000 gallons, not covered; drainage area not over 25 acres, lying between two water-sheds; seven acres of water-shed owned by municipality; one superintendent inspects plumbing at a salary of \$150 per year; supply is poor at some seasons of the year, at which times water is pumped from the lake; about 1,020 persons supplied; 46 4-inch hydrants and 204 meters in use; system is entirely metered; income per annum, \$1,467.16; meter rates, 20 cents per thousand gallons; gravity and pumping systems; average static head, 350 pounds; pressures in main from 80 to 150 pounds per square inch; 4 $\frac{1}{4}$ miles of pipe, sizes ranging from 4 to 8 inches in diameter; two dead ends, cleaned two or three times a year; pumps operated by steam; cost of entire water-works, \$27,000, total bonded debt, \$25,000; issued, 1904 at 4 per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system; cesspools.

HANCOCK (Incorporated Village), Delaware County.

Population: 1890, 1,279; 1900, 1,283; 1905, 1,381.

Supply furnished by The Hancock Water Company, obtained from springs; construction begun 1889; original outlay, \$20,000; an additional expenditure of \$30,000 has since been made; two reservoirs for distribution and one for storage, each containing about one month's supply, uncovered; extent of drainage area about 400 acres; reservoirs are cleaned every two years at an expense of about \$300; plumbing is inspected by the superintendent at a salary of about \$135 per annum; source of supply never failed since construction of last reservoir, about four years since; 180 $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch service taps in use, 97 bathtubs, 155 water-closets, 3 meters, and 33 4-inch and 2 $\frac{1}{2}$ -inch nozzle hydrants; income per annum, \$3,000; water charges, flat rate, \$3, \$5, and \$10 per annum; gravity system; pressures

in main from 30 to 90 pounds per square inch; 8-inch, 6-inch, and 4-inch pipe in use; 5 dead ends, cleaned once a month; cost of entire water-works to date, \$50,000; total bonded debt, \$18,000; issued, 1894, at 6 per cent., due 1914; municipality pays \$640 per annum for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

HANNIBAL (Incorporated Village), Oswego County.

Population: 1890, 452; 1900, 410; 1905, 386.

No public water supply. No public sewers.

HARRISVILLE (Incorporated Village), Lewis County.

Population: 1890, 617; 1900, 639; 1905, 780.

Supply furnished by municipality; construction begun 1899; original outlay, \$7,000; in 1904 an additional expenditure of \$8,500 was made; one open storage reservoir with a capacity of 157,000 gallons; 20 wells and 1 spring used in addition to public supply; extent of drainage area, 5,000 acres; 650 persons supplied from public supply and 200 from wells; average daily consumption per capita, about 56 gallons, all for domestic purposes; 200 houses within municipality; 115 $\frac{1}{4}$ -inch service taps in use; 30 bathtubs; 75 water-closets; 100 wash-tubs; 600 faucets; one meter and 23 double hydrants, with 2 $\frac{1}{4}$ -inch openings; income per annum, \$725; charges per annum: general faucet, \$2.50; bath, \$2; closet, \$2; sink, \$2; all others, \$1; pumping system; 13,413,750 gallons water pumped last year; average static head, 45 pounds; 80 rods of 6-inch and 1 $\frac{1}{4}$ miles 4-inch pipe in use; 7 dead ends, cleaned twice a year; pumps operated by gasoline; cost of entire water-works to date, \$15,500; total bonded debt, \$14,000; \$5,500 issued 1899 and \$8,500 issued 1904 at 4 per cent., \$700 payable each year.

SEWAGE DISPOSAL.

No public sewer system; cesspools. -

HERMON (Incorporated Village), St. Lawrence County.

Population: 1890, 473; 1900, 503; 1905, 517.

Supply furnished by municipality; obtained from springs; construction begun 1891; original outlay, \$7,500; in 1905 additional expenditure of \$1,000 for new pumping station; complaints of turbidity occasionally received after heavy storms in spring and fall; one Burnham frost proof tank with a capacity of 50,000 gallons; private wells used in addition to public supply; system controlled by board of three water commissioners; no salary; men are employed to repair plumbing when necessary; source of supply never failed; about 125 supplied from public supply, and 375 from other sources; 28 $\frac{1}{4}$ -inch service taps in use; water is hard and only 2 or 3 bathtubs connected with water system; 10 water-closets; about 10 wash-tubs, 60 faucets; 2 meters; 9 2-inch nozzle hydrants for 2 $\frac{1}{4}$ -inch coupling; income per year, \$130; water rates, \$2 per 1,000 cubic feet; pumping system; average static head, 80 feet; average dynamic head from 80 to 90 pounds; pressures, 20 pounds at tank, 40-45 pounds on streets; 2,000 feet 6-inch, 2,500 feet 4-inch and 15 feet 3-inch castiron pipe in use; 4 dead ends, cleaned several times during the summer; 2 pumps, one operated by 20-foot windmill and the other by kerosene oil engine; cost of entire water-works to date, \$8,500; total bonded debt, \$7,500. Issued 1891 at 4 per cent.; due 1911; sinking fund at date, \$600; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by surface drainage, cesspools and private vaults.

HONEOYE FALLS (Incorporated Village), Monroe County.

Population: 1890, 1,128; 1900, 1,175; 1905, 1,208.

Supply for sprinkling streets and lawns furnished by small private corporation; obtained from well; construction begun 1887; original outlay, \$2,500; in 1891 an additional expenditure of \$300 was made; one tank with a capacity of about 1,000 gallons; from 250 to 300 houses within municipality; income for 1905 not to exceed \$100; pumping system; 4-inch, 2-inch and 1-inch pipe in use; 5 dead ends cleaned once a year; pumps operated by steam; cost of entire water-works to date, \$2,500, with occasional repairs from earnings.

SEWAGE DISPOSAL.

No sewers.

HUDSON (City), Columbia County.

(SEE PAGE 106, REPORT OF 1906, FOR REPORT OF MUNICIPAL SYSTEM.)

Population: 1890, 9,970; 1900, 9,528; 1906, 10,290.

Supply furnished partly by municipality (obtained from a creek), and partly by Hudson Aqueduct Company (obtained from 3 natural springs). The following relates only to Hudson Aqueduct Co.: Construction begun about 1785; original outlay, \$14,000; no additions made except replacing pipes, etc.; sanitary condition of water-shed controlled by local board of health; 1 man employed to inspect plumbing; source of supply never failed; 435 persons supplied by the Aqueduct Company and 3 manufacturing plants for drinking purposes; there is a net loss of \$475.83 per annum; gravity system; municipal supply used for fire protection.

SEWAGE DISPOSAL.

Public sewers on combined system sewage empties into Hudson river.

INTERLAKEN (Incorporated Village), Seneca County.

Population: 1905, 717.

No public water supply.

ITHACA (City), Tompkins County.

Population: 1890, 11,079; 1900, 13,139; 1905, 14,615.

Supply furnished by municipality; obtained from springs and wells; condemnation proceedings, under Chapter 181, Laws of the State of New York for 1903, are being had; have been in possession of the plant since January 1, 1905; no purification process; daily tests of purity are made at present, and previous to this month, analyses were taken monthly; all have shown the supply to be pure and sanitary; 3 reservoirs with capacity of about 2,000,000 gallons or upwards; some private wells are used in addition to public supply; number not known; watershed contributory to springs inspected by Ithaca health board, and changes are now being made according to their recommendation; shed not owned by municipality; the city only maintains the mains; all plumbing was inspected to get number of fixtures when city took plant; additions are reported by plumbers; rain-gauge records for Ithaca maintained by United States Weather Bureau station here; about 12,000 or 13,000 persons are supplied from public supply; about 150 gallons per capita consumption; 600 meters; installing more; 222 hydrants; income by meter, \$12,960; otherwise, \$30,498.56; pumping system; all water pumped against about 220 feet head, second pumping for high service about 600,000 gallons daily, against 364 feet; average dynamic head, 110 pounds; about 600,000 gallons pumped to high service against 180 pounds, average; pressure in main from 65 to 120 pounds; 300 feet 3-inch, 23,650 feet 4-inch, 80,200 feet 6-inch, 55,800 feet 8-inch, 1,550 feet 10-inch, about 15,000 feet 12-inch and 68 feet 20-inch pipe in use; 20 or more dead ends, these are being remedied where possible; pumps operated by steam and water-power; duty of pumps about 30,000,000 feet pounds per 100 pounds of coal; cost of entire works not yet determined, question in court; total bonded debt at date, \$125,000, at 4 per cent. per annum.

Additions will be made as soon as condemnation proceedings are terminated; municipality pays \$9,081 per annum for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate house sewer system; no storm sewers, except in a few streets; final discharge pipes 2,000,000 gallons per day; construction begun in 1895; original expenditure, \$160,000; additional expenditure yearly; 95 per cent. of area sewerized; 2,081 6-inch house connections; manholes are placed at all intersections and at change of grade or direction, also on street sewers from 300 to 400 feet apart and at dead ends; 562 manholes; 8 miles brick paved streets, 1½ miles stone, 4½ miles macadam; sewage finally discharged into Cayuga lake, 1½ miles from shore and 30 feet below service; sewage not treated; plans accepted for construction of septic tank; cost of sewerage system, \$175,000, approximately; sewers cleaned whenever necessary; cost varies greatly with conditions; sewage pumped; steam power, cost for engineers and firemen, \$3,111.29; fuel and hauling, \$3,199.65; repairs, \$262.65; supplies, \$340; total bonded debt, \$125,000, issued 1895, and \$3,000, issued 1904 at 4 per cent. payable yearly in \$7,500 payments beginning July, 1906; sewage act provides for including in tax levy amount required for maintenance and to meet maturing bonds. Annual charges for operation and maintenance about \$10,000.

KEESEVILLE (Incorporated Village), Clinton and Essex Counties.

Population: 1890, 2,103; 1900, 2,110; 1905, 1,995.

Supply furnished by municipality; obtained from the Ausable river; construction begun in the spring of 1883; original outlay, \$35,000; additional expenditure of \$1,000 in 1890; water is filtered through two feet of gravel underneath pumping station; complaints received of quality in summer months; water is pumped direct from the pumping station to mains; about 200 wells and springs are used in addition to public supply; the drainage area is the whole Ausable Valley; sanitary condition of water-shed has been examined by State officials, but no steps have been taken to control the same; shed not owned by municipality; the drainage of Ausable Valley pollutes the supply; source of supply has never failed; about 1,000 persons are supplied from public supply; 216 gallons daily consumption per capita; 800 houses within the municipality; 150 ¼-inch service taps in use; 150 bathtubs; 150 water-closets; 100 washtubs, sinks and basins; 300 faucets; no meters; 50 4-inch hydrants; \$1,800 annual income; pumping system; 100,000,000 gallons pumped per annum; 40-80 pounds pressure in main; 8-inch to 2-inch pipe in use; 9 dead ends, cleaned once a month, from April to November inclusive; \$10 cost of repair per mile of pipe per year; pumps operated by water; cost of entire works to date, \$37,000; total bonded debt at date, \$9,000, at 4 per cent.; \$1,000 payable yearly; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

KENMORE (Incorporated Village), Erie County.

Population: 1900, 318; 1905, 506.

Supply furnished to village limits by Western New York Water Company; distribution of the water system within the limits of Kenmore begun 1902; original outlay, \$20,000; small extensions since; no purification process; tests of purity not made locally; no complaints received; one superintendent inspects plumbing and distributing system at a cost not to exceed \$500 per year; 725 persons supplied from public supply; 100 gallons consumption per capita; 150 houses within municipality; 145 ½-inch corporation cocks; 115 bathtubs; 130 water-closets; 100 washtubs, sinks and basins; 1,250 faucets; 12 meters and 28 6-inch and 9 4-inch hydrants; a flat rate of \$7.50 per year is charged for the consumption of 65,000 gallons; additional charge of 15 cents for every 1,000 gallons in excess; for houses on lots 30 feet front or less, \$7.50 per annum, includes 2 sink faucets, 2 washtubs of not more than 2 faucets each, 1 washstand, 1 lawn faucet, used 4 hours per day from May 1st to November 1st, 1 bathtub, 1 water-closet

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with self-closing valve; in case more than one family occupies the house, an excess charge of \$6 made for each additional family; system pumping from 65 to 150 pounds pressure in main; 12,330 feet 6-inch and 9,000 feet 4-inch pipe in use; 12 dead ends, cleaned two or three times a year; total bonded debt, \$20,000, issued 1902 at 5 per cent., payable in 20 yearly payments of \$1,000 each, first bond payable July, 1907; municipality pays \$25 per year for hydrant for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; discharge pipes at present two 15-inch tile; trunk sewer will soon be provided by the city of Buffalo; construction begun in 1894; no complete system designed, small sewers built from time to time as required; 140 6-inch house connections; 10 surface connections to sewers with ordinary cast-iron receivers; about 2 manholes every 1,000 feet; two streets of sewered locality paved; outlet into sewers of the city of Buffalo; system to be enlarged by construction of trunk sewer by Buffalo for Kenmore sewer; details not yet completed by the commissioner of public works at Buffalo; sewage empties into Buffalo's sewers; no bonds, local assessment.

LAKE GEORGE (Incorporated Village), Warren County.

Population: 1905, 644.

Supply furnished by Messrs. Bates and Worden; obtained from mountain streams; construction begun in 1876; no purification process; no complaints received of quality; there is plenty of water in the brook, and only small reservoirs are used; no source of supply other than public supply; drainage area is extensive watershed in wooded mountain; reservoir cleaned by Bates and Worden; watershed not owned by municipality; no pollution; source of supply never failed; all persons are supplied from public supply, except those near brook; 195 service taps in use; income per year, \$1,200 to \$1,275; water rates \$6 per family; gravity system; 125 to 170 pounds pressure in main; $\frac{1}{4}$ -inch to 4-inch pipe in use; no dead ends; mortgage debt at date, \$3,000, at 6 per cent.; municipality pays \$2 per hydrant for use of water for fire protection; no separate water supply for fire protection.

SEWAGE-DISPOSAL.

No public sewers; sewage disposed of by cesspools.

LAKE PLACID (Incorporated Village), Essex County.

Population: 1905, 1,514.

Supply furnished by municipality; obtained from Lake Placid direct by steam pump and from Lake Placid outlet by water power pump; construction of water-works begun in 1895 by Lake Placid Water Company and purchased by village in 1902 at a cost of \$21,500; in 1902-3 \$50,000 was expended for additions; in 1904-5 \$10,000; in 1905-6 construction begun on a new reservoir and pipe line at a contract price of \$25,000; tests of quality have been made by State; no record of results; no complaints received at any season; two reservoirs for storage and for distribution, not covered; one has capacity of about 30,000 and new reservoir, not completed, will have a capacity of about 4,000,000 gallons; with summer population about 8 days' supply in both reservoirs; no other supply used in addition to public supply; there is a pump owned by a hotel which can be used to pump water from the lake in case the public supply fails; drainage area about 20 square miles; no sewage allowed to flow into the lake; no inspection of plumbing and distributing system except to repair leaky fixtures; the expense is very small and local plumbers are employed when needed for this work; no other municipality obtains water from the same shed; no pollution unless it comes through the ground from camps around the shore of the lake; not many use cesspools; average daily yield estimated at 22,248,000 gallons; about 1,250 persons are supplied in winter and from 3,500 to 5,000 in summer from public supply, practically none from other sources; average per capita consumption about 100 gallons; 800 houses within municipality; 800 $\frac{1}{4}$ -inch, $\frac{3}{4}$ -inch and $\frac{5}{8}$ -inch service taps in use; 450 bathtubs; 500 water-closets, 100 wash-

tubs; 400 sinks and basins; 1,600 faucets and 27 4-inch two-nozzle fire hydrants; meter rates, 500 gallons or less per day, 60 cents per 1,000; 500 to 1,000, 48 cents; 1,000 to 5,000 36 cents; 5,000 to 12,000, 24 cents; 12,000 to 20,000, 18 cents, and 20,000 or more, 12 cents; for private houses, each family 1 faucet, \$12; each additional faucet, \$1; bathtub, \$3; water-closet, \$2; stationary washtubs, \$3; pumping system; average static head, 85 pounds; average dynamic head, 95 pounds; pressures in main, 45 pounds minimum at highest points, and 140 maximum at lowest part of village; 1 mile of 12-inch pipe, 1 mile 10-inch, $\frac{1}{4}$ mile 8-inch, 1 mile 6-inch, 4 miles 4-inch, 3 miles 3-inch and 4 miles of 2-inch pipe in use; 8 dead ends, flushed out about twice a year through the fire hydrants or gates left at the end; water power pump at outlet; steam pump on Lake Placid; cost of entire water-works to date, \$113,000, including minor expenses, repairs and new work; total bonded debt, \$45,000, at 4 $\frac{1}{4}$ per cent., due 1907-1931; \$30,000, at 4 $\frac{1}{4}$ per cent., due 1908-1931; \$10,000, at 4 $\frac{1}{4}$ per cent., due 1910-1934, and \$25,000, at 4 $\frac{1}{4}$ per cent., due 1910-1934; municipality does not pay for fire protection.

LARCHMONT (Incorporated Village), Westchester County.

Population: 1900, 945; 1905, 1,760.

Supply furnished by Larchmont Water Company; construction begun 1888; original outlay, \$225,222.61; additions, 1898-1905, for pipe line, etc., \$32,999.15; 1898, new reservoir, \$75,028.23; 1902, new reservoir, \$50,680.57, and in 1904 filtering plant, \$16,707.32; purification is employed; sand filter installed by Federal Filtration Co.; quartz, gravel and sand graded from 16 to 36 mesh, obtained on New Jersey shore, used; purification plant same as original; cost of purification treatment: for labor, \$262.80, chemicals \$194.25, interest \$668.28 and laboratory \$300 per annum per million gallons of water; tests of purity made continually; inspection by village health office, chemical and bacteriological tests by Lederle Laboratories; no complaints of quality received since installation of filter plant; sanitary condition watershed controlled by inspection and enforcing the laws of the State at an annual expenditure of \$600; source of supply failed about 8 or 9 years ago, streams being absolutely dry; village is a summer residential place, and persons supplied vary monthly; 355 houses within municipality; 380 $\frac{1}{4}$ -inch service taps; 325 meters and 53 4-inch hydrants; income for 1905, \$17,925.23, of which \$1,590 hydrant rental; meter rates: \$25 advance payment, entitling consumer to 25,000 gallons to be consumed within 1 year from date of payment; all in excess of 25,000 gallons at the rate of 85 cents per 1,000; hydrant rents, \$30 per year each; gravity system; pressures in main, 20 to 45 pounds; supply pipe to filter house, 20 inches; distributing main to Larchmont, 12 inches; secondary distributing mains, 6 inches and 8 inches; cross mains, 4 inches; 4 dead ends, all of which will be connected up in 1906; total repairs of pipe per annum not to exceed \$250; cost of entire water-works, \$400,637.88; total bonded debt, \$350,000, at 4 per cent.

SEWAGE DISPOSAL.

Public sewers; direct discharge in the waters of Long Island sound; separate system; construction begun 1874; original expenditure, \$5,000; in 1895 and 1899 additions were made; % of locality sewerized; 300 house connections, smallest size, 5 inches; 35 surface connections, 6 feet deep and 5 feet square; manholes at every turn or bend in the sewer system; 50 manholes; all-sewered locality is paved with macadam; sewage has direct outlet into the salt water of the sound; cost of sewerage system, \$97,200; sewers cleaned once a year; total bonded debt, \$70,000, at 4 per cent., part of which falls due every year; two men are employed to operate and maintain system at a cost of \$100 a year.

LEWISTON (Incorporated Village), Niagara County.

Population: 1890, 633; 1900, 697; 1905, 716.

No public water supply.

No sewer system.

LIBERTY (Incorporated Village), Sullivan County.

Population: 1890, 734; 1900, 1,760; 1905, 2,124.

Supply furnished by municipality; construction begun in 1893; original outlay, \$20,000; in 1894 an additional expenditure of \$10,000 was made; reservoir has a capacity of 1,000,000 gallons, not covered; drainage area, 500 acres; one man is employed to inspect plumbing and distributing system; average daily yield about 400,000 gallons; about 1,800 persons supplied; average per capita consumption, 200 gallons; 200,000 gallons used for domestic purposes per day, 100,000 for commercial and industrial, 50,000 for public purposes and 50,000 wasted; 425 houses within municipality, 7 meters and 41 4-inch hydrants; income per year from \$5,000 to \$6,000; water charges for private house, \$10 per annum: pumping and gravity systems; water is raised 100 feet from lake at a distance of about $\frac{1}{2}$ mile and runs down to reservoir $\frac{1}{2}$ mile; about 146,000,000 gallons pumped per annum; 10 per cent. of water used enters by gravity; average static head of pumps, 100 feet; pressures in main, 100 pounds; 8, 6, 4 and 2-inch pipe in use; 8 dead ends, cleaned about once in 30 to 60 days; pumps operated by steam; cost per million gallons raised 1 foot high, figured on pumping station expenses, \$1.90; cost per million gallons raised 1 foot high, figured on fixed charges, \$2.91; total bonded debt, \$32,000; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public sewers; house sewers only; 15-inch discharge pipes; construction begun in 1899; original expenditure \$38,000; in 1901 additional expenditure of \$10,000 was made; 90 per cent. of locality sewerized; 400 house connections; 4-inch and 6-inch pipes; 6 miles of sewers, 39 manholes; sewage treated in septic tank and filtered by cinders for 12 hours; bed filled once every hour; laboratory costs \$850 per annum; purification plant installed in 1900; original cost, \$10,000; has since been enlarged at a cost of \$6,500; purification plant was poor before enlarging; cost of treatment plant to date, \$16,500; cost of sewerage system, excluding the purification plant, \$50,000; no sewage pumped; total bonded debt, \$48,000: \$38,000 issued 1899 at $3\frac{1}{2}$ per cent., first bond due 1904 and last one 1919; \$10,000 issued 1901 at $3\frac{1}{2}$ per cent., first bond due 1906 and second one 1915; no sinking fund, paying off bonds each year.

LIMA (Incorporated Village), Livingston County.

Population: 1890, 1,003; 1900, 949; 1905, 972.

Supply furnished by municipality; obtained from well 20 to 30 feet deep, 12 feet in diameter and bricked from the bottom; construction begun in 1899; original outlay, \$25,500; in 1904 additional expenditure of \$400 for an extension of 400 feet; purification process by aeration, water elevated 5 feet above the top of reservoir and falls on series of tables made of galvanized iron, and thence into reservoirs; size of inlet and outlet pipes, 8 inches; purification plant installed in 1904; one reservoir with a capacity of about 250,000 gallons; no source of supply other than public supply; shed owned by municipality; water engineer inspects plumbing; no rain-gauge records; no other municipality obtains water from the same shed; no pollution; source of supply never failed; 250 houses within the municipality; about 20 meters in use; income, \$1,200 per year; pumping system; about 4 miles 8-inch, 6-inch and 4-inch pipe in use; cost of repairs to pipe \$10 per mile per year; cost of entire works to date, including 11 acres of land containing water supply, \$27,000; sinking fund at date, \$1,200; municipality does not pay for use of water for fire protection; no separate fire protection system.

SEWAGE DISPOSAL.

No sewers.

LIVERPOOL (Incorporated Village), Onondaga County.

Population: 1890, 1,284; 1900, 1,188; 1905, 1,144.

No public water supply.

LIVONIA (Incorporated Village), Livingston County.

Population: 1890, 738; 1900, 865; 1905, 782.

Supply furnished by municipality; obtained from Conesus lake; construction begun about 1900; original outlay, \$22,500; one reservoir with a capacity of 211,000 gallons; street commissioner inspects plumbing at cost of \$1.50 per day; villages of Geneseo, $\frac{1}{2}$ mile above, and Avon obtain water from same shed; source of supply never failed; 500 persons supplied from public supply and 500 from other sources; about 200 houses within municipality, 150 $\frac{1}{2}$ -inch service taps, 30 bathtubs, 30 water-closets, 150 washtubs, 300 faucets, 15 meters and 50 4-inch hydrants; income per year, \$700; meter rates: 20 cents per 1,000 gallons; \$5 for one faucet; 50 cents each additional; bathtub, 2; water-closet, \$3, and washtubs, \$1; pumping system; about 50,000 gallons pumped per day; pressure in main, 85 pounds; about 5 miles 4-inch and 6-inch pipe; 5 dead ends, cleaned every month; cost of repairs per mile of pipe per annum, \$20; pumps operated by steam; cost of entire water-works to date, \$22,500; total bonded debt at date, \$18,200, at 3.45 per cent., issued 1900; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; private service; combined and separate system; construction begun 1886; built by private funds; no complete system of house connections.

MAMARONECK (Incorporated Village), Westchester County.

Population: 1900, 4,722; 1905, 5,090.

Supply furnished by New York Inter-Urban Water Company; obtained from St. Mary's lake and from the woods and fields southwest of the village of White Plains; construction begun in 1886; about 1902 additional expenditures were made; purification process; mechanical filters; purification plant changed about 1902; complaints of quality formerly received in the fall; no other source of supply in addition to public supply; shed not owned by municipality; source of supply never failed; about 4,870 persons supplied from public supply; pumping system; pumps operated by steam; municipality pays about \$1,800 per year for use of water for fire protection; no separate supply for fire protection.

See also **MT. VERNON**.

SEWAGE DISPOSAL.

Public sewers in process of construction; separate system for houses; construction begun in March, 1905; original expenditure, \$200,000; about $\frac{1}{2}$ of area sewerized; house connections not made yet; connecting pipes to be 4-inch; manholes not completed; no portion of area of sewerized locality paved; cost of sewerage system to date, excluding purification plant, \$120,000; total bonded debt, \$200,000; \$100,000 issued at 3% per cent. and \$50,000 at 4 per cent., payable 1910 to 1934.

MANLIUS (Incorporated Village), Onondaga County.

Population: 1890, 942; 1900, 1,219; 1905, 1,236.

Supply furnished by municipality; obtained from inclosed springs owned by the village; construction began 1894, original outlay, \$20,000; no purification process employed; no complaint received of the quality; one 750,000 gallon reservoir; about 25 wells used in addition to public supply; source of supply has never failed; about 1,000 persons supplied by the public system; about 300 houses within the municipality; 10 bathtubs in use, 20 water-closets, 8 washtubs, 250 faucets, 98 meters; annual income about \$2,000; meter charges, $2\frac{1}{2}$ cents per hundred gallons; kitchen faucets, \$5 per year; closet, \$3; system, gravity; pressures in main, 20 to 125 pounds; total bonded debt at date, \$20,000, due October 1, 1914, 4 per cent.; sinking fund at date, \$2,000.

No public sewer system; no construction contemplated.

MAYFIELD (Incorporated Village), Fulton County.

Population: 1900, 589; 1905, 603.

No public water supply.

MARATHON (Incorporated Village), Cortland County.

Population: 1890, 1,198; 1900, 1,092; 1905, 1,042.

Supply furnished by municipality; obtained from springs; construction begun in 1897; original outlay, \$35,000; no purification process; no complaints received of quality; one reservoir for fire protection with a capacity of 750,000 gallons; five acres of watershed owned by municipality; no other municipality obtains water from the same shed; source of supply never failed; 273 2-inch, 1-inch, $\frac{3}{4}$ -inch and $\frac{1}{2}$ -inch service taps in use, 55 hydrants; income per year, \$2,500; gravity system; 80 pounds pressure in main; 10-inch to 4-inch pipe in use; 3 dead ends, cleaned every 30 days; \$5 average annual cost per mile repair to pipe; total bonded debt, \$24,500, \$22,000 issued 1897, at 4 per cent., \$1,000 payable per annum and \$2,500 issued 1898, at 4 per cent., \$500 due per annum; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Storm sewers; private system.

McGRAWVILLE (Incorporated Village), Cortland County.

Population: 1890, 733; 1900, 750; 1905, 879.

No public water supply; no public sewers.

MECHANICVILLE (Incorporated Village), Saratoga County.

Population: 1890, 2,679; 1900, 4,695; 1905, 5,877.

Supply furnished by municipality; obtained from springs; construction begun in 1891; original outlay, \$140,000; about \$500 to \$1,000 expended in betterments annually since; no purification process employed; test of water made by board of health; complaints are received of odor; one 100,000,000 gallon reservoir, about 279 days' supply; sanitary condition of watershed controlled by inspection; \$150 per year expended for purity; one plumbing inspector at \$300 per year; no rain-gauge records; supply per 24 hours, 425,000 gallons, weighed July 27, 1905; source of supply has never failed; about 5,000 persons are supplied; about 72 gallons daily consumption per capita; 1,200 service taps in use, 700 bathtubs, 790 meters and 81 hydrants; annual income by meter and otherwise, \$10,000; meter charges graded according to consumption; 500 gallons or less per day, 20 cents per 1,000 gallons; 500 to 1,000 gallons, 16 cents per 1,000 gallons, grading to 20,000 gallons or more per day, at 4 cents per 1,000 gallons; pressure in main, 70 to 85 pounds per square inch; sizes of pipes, 4-inch to 20-inch; total bonded debt, \$127,000, 4 per cent. and 3 $\frac{1}{2}$ per cent.; sinking fund at date, \$5,000.

SEWAGE DISPOSAL.

Public sewer system; combined system; construction of sewers began in 1896; original expenditure, \$40,000; about \$1,000 has been expended since; 6-inch service pipes; 15 surface constructions from 8-inch to 12-inch; total bonded debt, \$40,000; final disposal into Hudson river; no sewage treated.

MEDINA (Incorporated Village), Orleans County.

Population: 1890, 4,492; 1900, 4,716; 1905, 5,114.

Supply owned and operated by municipality; obtained from driven wells; construction begun May 11, 1905; original outlay, \$100,000; three small extensions since; water not subject to purification; bacterial and chemical examinations show practically the entire absence of decomposing nitrogenous matter; no complaints of quality received; distribution reservoir, 600,000 gallons and a standpipe, 258,000 gallons; none covered; no other source of supply except public; 30 acres of watershed owned by municipality; no inspection maintained; no rain-gauge records; no pollution exists; source of supply never failed; daily consumption, 65 gallons; for domestic purposes, 30 gallons, for commercial and industrial, 20 gallons, for public purposes, 10 gallons, wasted, 5 gallons; number of houses, 1,400; number and size of taps in use, 900, mostly $\frac{3}{4}$ -inch and $\frac{1}{2}$ -inch; 110 2 $\frac{1}{4}$ -inch hydrants;

income derived from sale of water, \$2,800 per quarter; meter charges, 100 gallons per day, 40 cents per 1,000 gallons; 100 to 500 gallons per day, 30 cents per 1,000 gallons; 500 to 3,000 gallons per day, 20 cents per 1,000 gallons; 3,000 to 10,000 gallons per day, 15 cents per 1,000 gallons; 10,000 gallons and upward per day, 12 cents per 1,000 gallons; pumping system; water pumped per annum: 1906 about 125,000,000 gallons; no surface water can enter pipes; average static head against which pumps work, 25 pounds; ranges of pressure in the main, 55 pounds; pipe in use, 12-inch cast-iron pipe, trunk line; 10-inch and 8-inch mains, 6-inch, 4-inch and 2-inch laterals; total length, about 10 miles; pumps operated by electricity; cost of pumping about 2 cents per 1,000 gallons into reservoir against a head of 60 feet; cost per million gallons raised one foot high, 3½ cents; cost of entire water-works to date, \$105,000; total bonded debt, \$100,000; 3 to 29 year serial bonds of \$3,703.10, beginning May 9, 1908; issued May 9, 1905, 3½ per cent.; no sinking fund; municipality pays \$3,000 per annum for fire protection.

SEWAGE DISPOSAL.

Public sewer system; combined system; paid for by adjacent property benefited; final discharge pipe of cast-iron, set in concrete, 2 feet in diameter; 75-foot fall in 1,400 feet; construction begun in 1891; original expenditure, \$1,500.87 in 1891; additions, \$12,483.69 in 1892, \$510.85 in 1892, \$17,551.25 in 1893, \$1,320.06 in 1893, \$5,168.77 in 1894, \$331.10 in 1894, \$4,000 extension of outlet in 1904; about one-half of area of locality is sewered; size of connections, 6-inch and 8-inch; 50 surface connections; about 3 manholes per 1,000 feet of sewers; total number of manholes, 30; about one-third of sewerized area is paved; final disposal of sewage into Oak Orchard creek, below village; no sewage subject to purification; cost of sewage system, \$42,866; no sewage pumped; no charges for operating system.

MILLERTON (Incorporated Village), Dutchess County.

Population: 1890, 638; 1900, 802; 1905, 775.

Supply furnished by municipality; about seven months in the year obtained from a spring, and the balance of the year pumped from a well; construction begun in 1891; original outlay, \$18,000; no purification process; no tests of purity; no complaints of quality; water is a little rolly during spring freshets; one reservoir with a capacity of about one-half million gallons; one-half square mile drainage area; six acres of watershed owned by municipality; no other municipality obtains water from the same shed; no pollution; spring gets low every summer, never entirely dry; 160 ¼-inch and ¾-inch service taps in use, 3 meters, 26 4-inch hydrants; annual income, \$2,520; meter charges per 1,000 gallons, for railroad, 6 cents, factory, 30 cents, sinks, \$5, hose, \$3, bath, \$3, closet, \$2, basins, 50 cents, barns, \$3; gravity and pumping system; 229 feet average static head; 119 to 129 pounds average dynamic head; 75 to 90 pounds pressure in main; about 3,500 feet 8-inch to ¾-inch pipe in use; one dead end, cleaned annually; pumps operated by gasoline and steam; cost of entire works to date, \$25,000; total bonded debt at date, \$14,000, issued 1891, at 4 per cent., to become due in 1911; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools; partial system of storm sewers.

MONROE (Incorporated Village), Orange County.

Population: 1890, 630; 1900, 796; 1905, 1,008.

Supply furnished by municipality; obtained from lake; construction begun in 1894; original outlay, \$40,000; no purification process; no test of purity; complaints of quality occasionally received during late summer; one reservoir, with capacity of 20,000,000 gallons; drainage area, 2,000 acres; shed not owned by municipality; plumber employed when necessary; no rain-gauge records; private party obtains water from the same shed for power; lake covers 3.4 acres; no pollution; average daily yield, 100,000 gallons; supply never failed; about 1,000 persons supplied from public supply, 200 other sources; average consumption per

capita per day, 100 gallons; income per year, \$2,000; gravity system; pressure in main, 60 to 100 pounds; 1 mile 14-inch, 2 miles 10-inch and also 8-inch, 6-inch and 4-inch pipe in use; 5 dead ends, cleaned about once in three months; cost of entire works to date, \$40,000; total bonded debt at date, \$38,000, \$36,000 issued December, 1894, at 4 per cent. and \$2,000 issued January 1, 1900, at 5 per cent., due in 30 years; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

No sewers; sewage disposed of by cesspools.

MONTICELLO (Incorporated Village), Sullivan County.

Population: 1890, 1,016; 1900, 1,160; 1905, 1,388.

Supply furnished by municipality; obtained from lake covering 140 acres; construction begun in 1895; original outlay, \$2,700; additions have been made at various times since to the amount of \$5,000; chemical tests of purity; no complaints received of quality; one standpipe with a capacity of 227,000 gallons for storage, about a two days' supply; drainage area about 50 acres; town board of health controls sanitary condition of watershed at a cost of about \$50 a year; about three acres of watershed owned by municipality; water commissioners inspect plumbing and distributing system and employ engineers and other men when needed; no other municipality obtains water from the same shed; source of supply has never failed; about 1,700 persons supplied from public supply; 800 houses within municipality, 64 meters in use and 34 2-inch hydrants; income per year, \$5,000; pumping system; average static head, 137 pounds; pressures in main, 65 pounds; 8, 6, 4 and 2-inch pipe in use; 8 dead ends, cleaned every four weeks; annual cost of repair per mile of pipe, \$15; pumps operated by steam; cost of entire water-works to date, \$31,000; total bonded debt at date, \$27,000, issued 1895, at 4 per cent., due 1915; fire system owned by municipality.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of in cesspools.

MONTOUR FALLS (Incorporated Village), Schuyler County.

Population: 1900, 1,193; 1905, 1,236.

Supply furnished by municipality; used principally for fire and sprinkling purposes; construction begun in 1898; original outlay, \$34,000; no purification process; tests of purity have been made by State Board of Health; complaints of quality occasionally in July and August; reservoir has 11,000,000 gallons capacity; artesian wells for nearly every house, in addition to public supply; sanitary condition of watershed controlled by vigilance on the part of officers of village; about 3½ acres owned by municipality; no other municipality obtains water from the same shed; accumulation of sediment pollutes supply; watershed, farm lands; no factories or prominent buildings; source of supply never failed; 100 persons supplied from public supply; 400 houses within municipality, 100 service taps, 25 bathtubs, 25 water-closets, 25 washtubs, sinks and basins, 13 faucets, no meters; annual income, \$900; gravity system; 80 pounds average pressure in main; 12-inch, 8-inch, 6-inch and 4-inch pipe in use; 5 dead ends, some with blow-off, others flushed from hydrants; cost of repair per mile of pipe, \$45; cost of entire water-works to date, \$35,000; total bonded debt, \$28,500, issued 1898, at 3.65 per cent., \$1,500 due each year; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers.

MORRIS (Incorporated Village), Otsego County.

Population: 1890, 601; 1900, 553; 1905, 561.

Supply furnished by municipality; obtained from spring brook; construction begun 1895; original outlay, \$13,000; in 1897 repairs were made to storage reser-

voir at an expense of \$1,500; filter constructed as follows: bed of brook one-half mile above storage reservoir is cleaned to solid rock for a space about twenty feet square; this is filled with washed gravel and black sand to depth of twelve inches and in the bottom are tile leading to small well, cemented all around, from which well there is 8-inch pipe to storage reservoir. One reservoir for storing, settling and distribution with a capacity of about 100,000 gallons; covered with shingle roof; one acre of shed owned by municipality; one man is employed to superintend distributing system, flush hydrants, etc., at an expense of \$25 or \$50 per annum; 400 persons supplied from public supply and 200 from other sources; 175 houses within municipality; 100 1-inch to $\frac{3}{4}$ -inch service taps, 15 bathtubs, 15 water-closets, 200 faucets and 28 2 $\frac{1}{4}$ -inch and 3-inch hydrants; income per annum, \$700; gravity system; pressures in main from 70 to 80 pounds to inch; 1 $\frac{1}{2}$ miles 8-inch pipe and 1 $\frac{1}{2}$ miles each 6-inch, 4-inch and 2-inch pipe; 4 dead ends, cleaned three or four times per year; cost of entire water-works to date, \$14,500; total bonded debt, \$13,000, issued 1895, at 4 per cent, due in twenty years; may be paid in ten years; bonds are \$500 each and one bond per year is now being paid.

SEWAGE DISPOSAL.

No sewers; vaults and cesspools.

MORRISTOWN (Incorporated Village), St. Lawrence County.

Population: 1890, 472; 1900, 466; 1905, 429.

No public water supply.

MT. KISCO (Incorporated Village), Westchester County.

Population: 1890, 1,095; 1900, 1,346; 1905, 1,830.

Supply furnished by municipality; obtained from springs; construction begun in 1895 with an original outlay of \$29,000; additions are now being made at a cost of \$14,000, increasing storage capacity from one-half to 6,000,000 gallons; no purification process; purity tested several times and found satisfactory; other sources of supply in use: wells and cisterns; drainage area, 100 acres, of which 21 belong to village; sanitary condition controlled by local board of health; inspection of plumbing, etc., costs \$150 to \$200 per year; no rain-gauge records kept and no gaugings; no other municipality obtains water from same watershed; no pollution exists; average daily yield, 400,000 gallons; supply never failed; about 1,200 persons supplied; daily consumption per inhabitant, 100 gallons, of which 25 per cent. is used for street sprinkling and 25 per cent. wasted; 400 houses within municipality; meters in use, 20; 50 4-inch hydrants; annual income about \$3,000, of which 10 per cent. by meters; system, gravity; about seven miles of 10, 8, 6 and 4-inch pipe in use; 14 dead ends, flushed when necessary; cost of entire water-works to date, \$33,000; when complete, \$43,000; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; final disposal of sewage into brooks and streams which empty into Croton lake, New York; plans for proposed system have been accepted by State Board of Health, but no progress has been made owing to lack of co-operation by New York city authorities.

MT. MORRIS (Incorporated Village), Livingston County.

Population: 1890, 2,286; 1900, 2,410; 1905, 2,611.

Supply furnished by Mills Water Works Company; no purification process employed; no complaints received of quality; capacity of reservoir about 1,000,000 gallons; no rain-gauge records kept; no other municipality obtains water from same watershed; no pollution exists; source of supply has never failed; gravity water system; 10,564 4-inch, 8,800 6-inch, 2,120 8-inch and 12,000 $\frac{3}{4}$ -inch pipe in use; municipality pays \$600 yearly for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

No sewers have been constructed; sewage disposed of by cesspools, vaults and natural drainage; system of sewers contemplated but voted against fall 1905 election.

MT. VERNON (City), Westchester County.

Population: 1890, 10,830; 1900, 21,228; 1905, 25,006.

Supply furnished by New York Interurban Company; obtained from Mamaroneck and Hutchinson rivers; construction begun about 1886; water purified by slow sand and mechanical filters; local sand, graded by constructing engineer employed; filters installed in 1894; test of purity made on an average of once a month; no complaints of quality received; four storage reservoirs, one 13,000,000, one 15,000,000, one 5,000,000 and one 80,000,000 gallons capacity; drainage area of Mamaroneck river, fifteen square miles, Hutchinson river, five square miles and Tom Payne brook, one square mile; plumbing services only inspected when laid; rain gauges recently installed; New Rochelle Water Company also takes water from Hutchinson river; some houses on watershed and street washings pollute supply; average daily consumption per capita, 75 gallons; 5,326 service taps in use October, 1906; meter charges, \$3, quarterly minimum, allowing 1,333 cubic feet; all over, at 22½ cents per 1,000; pumping system; average static head, 230 pounds; pressure in main from 30 to 125 pounds; 21,110 feet 16-inch, 9,505 feet 12-inch, 10,742 feet 10-inch, 8,870 feet 8-inch, 8,374 feet 6-inch, 1,600 feet 5-inch, 1,625 feet 4-inch, 7,590 feet 3-inch pipe in use; pumps operated by steam; municipality pays annually \$30 for each fire hydrant.

SEWAGE DISPOSAL.

Public sewers; separate system; final outlets have capacity of 2,000,000 gallons per day; construction begun in 1888; original expenditure, \$168,000; lateral sewers have been added every year since 1888; about 50 per cent. of area is sewerized; 3,600 6-inch house connections; 4 manholes per 1,000 feet of sewers; 1,160 manholes approximately; about 95 per cent. of sewerized locality paved; sewage finally disposed of in Hutchinson river; sewers cleaned twice a year at \$7 per mile; sewage pumped at annual cost of \$3,400; \$175,000 sewerage loan bonds, at 4 per cent. and \$180,000, at 3½ per cent. were outstanding September 1, 1905.

NASSAU (Incorporated Village), Rensselaer County.

Population: 1890, 356; 1900, 418; 1905, 455.

Supply furnished by municipality; obtained from springs; construction begun in 1902; original outlay, \$12,000; additional expenditure of \$500 in 1904 and \$300 in 1905; complaints of turbidity received occasionally after heavy rains, due to wash in reservoir; reservoir site owned by municipality; no other municipality obtains water from the same shed; supply partially restricted in 1905 on account of leakage and drought; about 200 persons are supplied from public supply, 3 manufacturers and 2 hotels; 91 houses within municipality, 16 ¾-inch and 28 ¼-inch taps in use, 11 bathtubs, 11 water-closets, 43 washtubs, 96 faucets, 27 hydrants, 2 2½-inch nozzles each; income per year, \$425; annual water rates, ordinary family use, each family, \$6; sprinkling privilege, \$6; both family use and sprinkling privilege, \$8; bathtub, \$2; water-closet, one seat, \$2; both water-closet and bath, \$8; additional bathtub or closet, \$1; barn, not exceeding two cows or horses, \$6; barn, not exceeding two cows or horses in connection with house, \$2; stores, \$6; 60 pounds pressure in main; one dead end located at hydrant; cost of entire water-works to date, \$12,800; total bonded debt, \$12,000, issued 1902, at 3½ per cent., \$750 due each year; sinking fund at date, \$950.

NELSONVILLE (Incorporated Village), Putnam County.

See report of village of COLD SPRING.

Population: 1900, 624; 1905, 671.

Supply furnished from Cold Spring reservoir; the village of Cold Spring had a free grant from the Nelsonville board of trustees to lay their mains through Main

street of Nelsonville; construction begun about 1893; 25 wells and 6 springs are used in addition to public supply; about 225 persons supplied; 145 houses within municipality, 45 $\frac{1}{4}$ -inch service taps, 12 or 15 bathtubs, 12 or 15 water-closets, 100 washubs, 6 meters and all that take water have a free street sprinkler; meter rates, 20 cents per 1,000 gallons, and \$7.50 per annum per faucet.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by private cesspools.

NEW BERLIN (Incorporated Village), Chenango County.

Population: 1890, 979; 1900, 1,156; 1905, 1,128.

Supply furnished by municipality; obtained from spring brook; construction begun in 1885; original outlay, \$36,000; additions made from receipts of water rents; three reservoirs, one of 13,000,000 gallons and two distributing, with a capacity each of 60,000 gallons; drainage area, 500 acres; supply never failed; 1,150 persons supplied from public sources and 30 from other sources; 305 houses within municipality; 200 $\frac{1}{4}$ -inch, 78 $\frac{1}{4}$ -inch service taps in use; 61 bathtubs, 98 water-closets, 375 faucets and 4 3-inch nozzle and 32 2-inch nozzle hydrants; income in 1905, \$2,637; no meter rates; \$2 for street sprinkler, and a house with complete plumbings, \$15; gravity system; pressures in main from 70 to 125 pounds per square inch; 10-inch, 8-inch, 6-inch and 4-inch pipe in use; five dead ends, blown out each month regularly and often when necessary; total bonded debt, \$28,500, \$2,000 payable annually, \$24,500 issued at 4 per cent. and \$4,000 at 3 $\frac{1}{2}$ per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools; some private sewers empty into river.

NEW HARTFORD (Incorporated Village), Oneida County.

SEWAGE DISPOSAL.

Public sewers have been constructed; separate storm and house sewers; capacity of final discharge pipes, 5,000,000 gallons per day; construction of sewers begun April, 1902; original expenditure, \$14,293.84; there has been no expenditure since; all of the locality is sewered; 100 house connections; size of connecting pipes usually 5-inch, occasionally 4-inch or 6-inch; no surface connections to sewers; there are 39 manholes and 25,247 feet of sewers, an average of 1 $\frac{1}{2}$ per 1,000 feet; none of the sewered locality is paved; sewage is finally disposed of into Sauquoit creek; a septic disposal plant was designed and approved, but has not yet been built; no purification treatment; cost of sewerage system about \$14,400; it has not been necessary to clean sewers at all, save what the flush tanks accomplish; sewage is not pumped; total bonded debt in 1902 was \$20,000, due in ten years, at 3.4 per cent.; annual charges for maintaining system, \$15.

NEW PALTZ (Incorporated Village), Ulster County.

Population: 1890, 935; 1900, 1,022; 1905, 970.

Supply furnished by New Paltz Water Works Company; construction begun in 1892; original outlay, \$35,512; in 1902 additions were made costing \$12,500; no filter used, water comes direct in mains from reservoir, wire screen over intake pipe; test of purity made a few years ago, and water pronounced pure and in good condition; complaints very seldom received, odor only when reservoirs are about empty in hot weather during a severe drought; turbidity very seldom, only after excessive rains in spring or fall for a day; two storage reservoirs and one distribution, which can all be thrown into one; supply will last in each from 30 to 40 days; no other source of supply in addition to public supply; drainage area from six to eight acres; sanitary condition of watershed observed by the superintendent, who is paid a salary for same; watershed is owned by the New Paltz Water Works Company; plumbing and distributing system also inspected by superintendent, assisted by one or two men; no other municipality obtains water from

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the same shed; source of supply never failed; from 600 to 700 people are supplied from public supply; 141 houses within municipality, 80 $\frac{1}{4}$ -inch, 29 $\frac{3}{4}$ -inch, 19 1-inch and 3 4-inch service taps in use, 56 bathtubs, 77 water-closets, 222 wash-tubs, 316 faucets, no meters and 20 1-inch yard hydrants; income per year, \$3,595.41; no meters used, all flat rates; rates \$10 per year, first tap, \$2 for each additional, bathtub, \$2, water-closet, \$2, sprinkling, \$2 and \$2 for each additional, boarding-houses and hotels, double rate for first \$10 tap; gravity system; pressures in main 130 pounds; 8-inch, 6-inch and 4-inch pipe in use; ten dead ends cleaned once or twice per year; 7 miles of pipe in all; \$50 per year per mile of pipe for repairs; cost of entire water-works to date, \$47,012; total bonded debt, \$35,500, \$25,000 issued 1902, at 5 per cent., due 1922, \$18,000 issued 1902, at 5 per cent., one or more to mature each year, beginning 1908; municipality pays \$1,000 per annum for fire protection; no separate supply.

NEWPORT (Incorporated Village), Herkimer County.

Population: 1890, 659; 1900, 610; 1905, 672.

Supply furnished by municipality; obtained from springs; construction begun 1887; original outlay, \$4,500; in 1893 an additional expenditure of \$6,500 was made; one storage reservoir, with a capacity of 225,000 gallons, uncovered; no other source of supply except spring water for fountain in Center square; supply furnished by side hill springs within radius of 100 feet; watershed owned by municipality; plumbing system maintained at an expense of \$25 per annum; 75,000 gallons average daily yield; 700 persons supplied from public supply and 50 from springs; average daily consumption per capita, including waste, 85 gallons; 672 service taps in use, 19 bathtubs, 19 water-closets, 121 wash-tubs, 672 faucets and 4 3-inch and 2 2-inch hydrants; income per annum \$867; no meter rates; flat rate of \$4, \$1 extra for bath or closet; gravity system; 60,000 gallons of water enters piping system every twenty-four hours; 60 pounds pressure in main at business center; one-half mile 4-inch pipe from springs to reservoir, one mile 3-inch pipe from reservoir to business center, lateral one mile 2-inch and one-half mile 1-inch; cost of entire water-works to date, \$10,000; total bonded debt, \$10,000, issued 1893, at 4 per cent., due 1913; sinking fund at date, \$1,400; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system; cesspools; system of sewers contemplated.

NIAGARA FALLS (South End), (City), Niagara County.

Population: 1900, 19,457; 1905, 26,560.

Water supply furnished to the south end of the city by the Niagara Falls Water Works Company; obtained from Niagara river; the north end of the city is supplied by a municipal plant (see Report, 1906); construction begun, 1877, consisting only of pipe lines, the supply being derived from the pumps of the north end (then the village of Suspension Bridge); in 1898, a pumping station was added at a cost of over \$200,000; purification process employed consists of mechanical filter, nine tubs about 16 feet in diameter, two settling basins and one clear-water reservoir; alum is used; purification plant is new, same as original; complaints occasionally received of quality in the spring and autumn; one standpipe, with a capacity of 900,000 gallons; two inspectors inspect plumbing and distributing system at a cost of about \$1,000 a year; sewage from Buffalo and Tonawanda pollutes supply; supply unlimited; about 10,000 people supplied; income per annum, \$60,000; pumping system; average static head about 300 feet; pressures in main from 65 to 85 pounds to square inch; three dead ends, cleaned every two weeks; repairs per mile of pipe per annum, \$13.92; low lift to filter operated by electricity and pressure to system by hydraulic power; municipality pays \$7,560 per annum for fire protection.

NICHOLS (Incorporated Village), Tioga County.

Population: 1905, 452.

No public water supply.

NORTH OLEAN (Incorporated Village), Cattaraugus County.

Population: 1900, 1,549; 1905, 1,761.

Supply furnished by the city of Olean; construction begun in 1897; one reservoir for storage and distribution with a capacity of 2,000,000 gallons, about 24 hours' supply, not covered; supply never failed; about 375 persons supplied; pumping system; cost of entire water-works to date, \$17,770; total bonded debt, \$9,000, issued 1896, at 5 per cent, due 1915; municipality pays \$600 per annum for fire protection. See Report of CITY OF OLEAN.

NORTH PELHAM (Incorporated Village), Westchester County.

Population: 1900, 684; 1905, 850.

Water supply furnished by the New Rochelle Water Company and is under the control of the board of fire commissioners of the first fire district of the town of Pelham; construction begun in 1893; municipality pays \$1,050 per annum for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

NORTH TARRYTOWN (Incorporated Village), Westchester County.

Population: 1890, 3,179; 1900, 4,241; 1905, 4,750.

Supply furnished by Consolidated Water Company of Suburban, N. Y.; construction begun about 1886; water purified by mechanical filters; pressure type; sulphate of alumina used; clean pit sand, sized by screens 14 to 20; tests of purity made; complaints received occasionally as to taste in spring and fall; one storage reservoir with a capacity of 83,000,000 gallons and two distributing reservoirs of 3,000,000 gallons each, not covered; extent of drainage area fifteen square miles; services owned by consumers; drainage from farms pollutes supply; 1,208 service taps in use October, 1906; pumping system; about 2,000,000 gallons pumped per day; average static head, 250 feet; pressures in main, 30 to 250 pounds; 65,904 feet 16-inch, 4,400 feet 12-inch, 25,336 feet 10-inch, 24,578 feet 8-inch, 128,909 feet 6-inch, 62,680 feet 4-inch and 21,151 feet from $\frac{1}{4}$ -inch to 3-inch pipe in use; dead ends cleaned twice yearly and when necessary; pumps operated by steam; duty of pumps 60,000,000 pounds per 100 pounds of coal; municipality pays yearly \$30 and \$40 for each hydrant.

See 1906 Report as to Sewage Disposal.

NORWOOD (Incorporated Village), St. Lawrence County.

Population: 1890, 1,463; 1900, 1,714; 1905, 1,779.

Supply furnished by municipality; obtained from Racquette river; construction begun in 1902; original outlay, \$36,500; additional expenditure of \$1,000 in 1905; no purification process; no other municipality obtains water from the same shed; paper mill 3 miles above intake; source of supply never failed; 102 bathtubs, 188 water-closets, 370 washtubs, sinks and basins, no meters, 45 $2\frac{1}{2}$ -inch hydrants; annual income, \$3,000; system entirely pumping; 75,000,000 gallons pumped per year; 75 pounds average dynamic head; from 50 to 75 pounds pressure in main; 6 miles 4 to 10-inch pipe in use; 4 dead ends, cleaned every three weeks; pumps operated by water; cost of entire water-works to date, \$37,500; total bonded debt, \$37,500, issued 1902, at $3\frac{1}{2}$ per cent, payable in \$1,000 payments each year; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; final discharge pipes, 18-inch; construction begun in 1902; original expenditure, \$31,000; 6-inch house connections; 2 manholes per thousand feet of sewers, total, 45; sewage discharges into river; sewers cleaned every two months at \$2.50 per mile; total bonded debt, \$29,000, issued 1902 at $3\frac{1}{2}$ per cent., \$1,000 due each year; \$25 expended annually for operating and maintaining system.

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OAKFIELD (Incorporated Village), Genesee County.

Population: 1890, 578; 1900, 714; 1905, 873.
No public water supply. No public sewers.

ODESSA (Incorporated Village), Schuyler County.

Population: 1905, 354.
No public water supply. No public sewers.

ORAMEL (Incorporated Village), Allegany County.

Population: 1905, 160.
No public water supply. No public sewers.

OTEGO (Incorporated Village), Otsego County.

Population: 1900, 658; 1905, 651.
Supply furnished by municipality; water-works built by private company and bought by the village of Otego in 1900 for \$18,000; no additional expenditure since; no purification process employed; no tests made of purity since owned by the village; no complaints of quality; one covered reservoir, capacity 30,240 gallons; water obtained from springs, and supply increased by intake from brook to reservoir; watershed is fenced; only expense for maintaining purity is for repairing fences; about 2 acres of watershed is owned by municipality, this includes the springs; brook runs through farming lands; the plumbing and distributing system is looked after by trustees; no rain-gauge records kept; no other municipality obtains water from same watershed; no pollution exists; yield not known; source of supply never failed; about 600 persons are supplied from public supply; 155 houses within the municipality; 150 $\frac{1}{2}$ -inch service taps in use, with a few $\frac{3}{4}$ -inch, 42 bathtubs, 44 water-closets, no meters, 19 4-inch and 6-inch hydrants; income about \$1,350 annually; water system, gravity; 2 dead ends, cleaned twice a year; total bonded debt, \$15,000, \$600 due on principal June 11th of each year; interest at 3 $\frac{1}{2}$ per cent.; bonds held by State Comptroller for Canal Fund; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

OXFORD (Incorporated Village), Chenango County.

Population: 1890, 1,477; 1900, 1,931; 1905, 1,865.
For report on water supply see Report of 1906.

SEWAGE DISPOSAL.

Storm sewer has been constructed; private drains to river; construction of sewers begun in 1903; 10 surface connections to sewers; all of sewered locality has brick pavement; sewage is finally disposed of in river.

PALATINE BRIDGE (Incorporated Village), Montgomery County.

Population: 1900, 360; 1905, 318.
Supply furnished by Canajoharie Water Supply Co.; construction of water-works begun in 1902; \$505 rental is paid per year; cost of water-works not known; no sewers have been constructed except for surface water.

PEEKSKILL (Incorporated Village), Westchester County.

Population: 1890, 9,676; 1900, 10,358; 1905, 13,200.
Supply furnished by municipality; construction of water-works begun in 1875; original outlay, \$150,000; \$13,466.31 expended from 1878 to 1890; \$53,038.22, 1890 to 1895; \$4,038, 1895 to 1900, and \$64,702.75, 1900 to 1905; total, \$135,245.28; no purification, except use of screens; no filters used; two inlet pipes, one 20-inch and one 12-inch; no tests made of purity in the last five years; complaints only received of purity in the spring or summer of a fishy odor; one 26,000,000 gallon reservoir for storage and distribution, about a 11-day supply;

extent of drainage area, 30,000 acres; sanitary condition of watershed is occasionally inspected by a committee; cost of examining purity is included in general expenses of the plant; the inspector of the board of water commissioners ascertains that meters are set and that no consumers put in additional fixtures without application to the board; no rain-gauge records kept; no other municipality obtains water from the same watershed; the drainage area of Mohegan, Oscawana and Osceola lakes contains an occasional stable near the stream and a few water-closets nearer than they should be; average daily yield not known; in some summers the pumps have been stopped occasionally to permit filling of the pond from which supply is pumped; usually in dry weather, entire stream is pumped; the whole population is supplied from the public supply, except a few on the outskirts, who use from wells; average daily consumption per inhabitant, 154 gallons; 364 taps in use, according to schedule rate, and 1,136 by meter rates; 1,199 meters in use; income by meter, \$20,306.75; otherwise, \$4,015.47; meter charges, where the daily average is 300 cubic feet or over, 10 cents for the first 100 cubic feet or any portion thereof; 7 cents for the next 200 cubic feet, and 5 cents all over this up to 20,000 cubic feet daily; 4 cents all over this used daily; system is pumping; 257,826,175 gallons pumped in 1898, 301,836,260 in 1899, 569,924,915 in 1900, 519,048,560 in 1901, 565,055,655 in 1902, 607,432,370 in 1903, 684,003,575 in 1904 and 743,349,835 in 1905, measured by pump indicators; 160 pounds average static head of pumps; 163 pounds average dynamic head; pressure in main, 45 to 163 pounds; 25 dead ends, cleaned every two weeks in summer and as often as weather permits in winter; cost of repairs per mile of pipe small, no separate account kept; pumps operated by water and steam; for the year 1905 the steam pumps consumed 2,725,600 pounds of coal to raise 679,818,760 gallons of water into the reservoir to a height of 354 feet; average cost for two years of raising 1,000,000 gallons into the reservoir, a height of 354 feet, \$14.50; cost of entire works to date, \$285,245.28; total bonded debt at date, \$227,936.18; value of sinking fund at date, \$8,330.42; municipality does not pay for use of water for fire protection; no separate supply and distribution system for fire protection.

PELHAM (Incorporated Village), Westchester County.

Population: 1900, 303; 1905, 349.

Supply furnished partly by New York Interurban Co. See MT. VERNON; see also 1906 Report as to Pelham Hygeia Ice Co. and New Rochelle Water Co.

PELHAM MANOR (Incorporated Village), Westchester County.

Population: 1905, 638.

Supply furnished by New Rochelle Water Company; obtained from Hutchinson's river; no purification process; test was once made on account of turbid condition of water, showed no harmful bacteria; complaints occasionally received of quality, after heavy rains, particularly if the ground is frozen, but present water supply has only been in use for about two years; storage reservoir capacity not known; not covered; the city of New Rochelle obtains water from the same reservoir; source of supply never failed since the village has used it; a few wells are used in addition to public supply; 119 houses within the municipality; 14 hydrants, each with either 2 or 3-fire taps; corporation coupling, 2½-inch; gravity system; pressure at hydrants, 24 to 50 pounds; municipality pays annual rent for hydrants;; no separate supply for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate sewer system; storm sewers are only partial: discharge pipes, 12-inch; construction begun in 1897; original expenditure, \$60,000; when new streets have been accepted by the village, they have been first sewered by owners at a cost not known; practically all the residence portion sewered; nearly every residence and several stables have 2½-inch connections, probably about 150 in all; no surface connections to house sewers; storm sewers are 4-inch, short, only to relieve certain localities; manholes at every bend or change of grade,

number not definitely known; final disposal of sewage into Eastchester creek; sewage not treated; cost of sewerage system, \$60,000, plus private construction; sewers cleaned by automatic flushing once a year at irregular cost; 12 houses discharge into a tank from which the sewage is pumped into main, height about 14 feet, electrical power furnished free; cost of attendance and care of pumping station, \$540 per year; total bonded debt, \$60,000, issued May, 1897, due May, 1917, 4 per cent.; regular charge for operating and maintaining system, \$540 per year by contract; occasional work done by village laborers under direction of street commissioners; cost not separated.

PERRY (Incorporated Village), Wyoming County.

Population: 1890, 1,528; 1900, 2,763; 1905, 3,749.

Supply furnished by municipality; obtained from Silver lake, which is fed by springs; construction begun in 1895; original outlay, \$43,000; no purification process; complaints received of quality in August or September, when weeds ripen, or with heavy northeast wind in warm weather; the same complaint from all surrounding villages which use lakes for supply; no reservoir; standpipe, with capacity of 100,000 gallons; shed not owned by municipality; plumbing inspector is paid \$1.50 each inspection; president of village and superintendent of water-works are employed by year; no municipality obtains water from the same shed; very little pollution; source of supply never failed; about 3,280 persons supplied from public supply; 850 houses within the municipality; 778 $\frac{1}{2}$ -inch and a few 2-inch service taps in use; 254 bathtubs; 419 water-closets; 16 stationary tubs; 334 bowls; 700 sinks; 22 meters; 98 6-inch and 4-inch hydrants; income by meter, \$1,751.37; otherwise, \$6,484.13; lowest water rates, 5 cents per 1,000 gallons and highest, 12 cents; first faucet, \$6; bowl and extra faucets, 50 cents; bath, \$2.50; seat, \$3.50; washtubs, \$1; lawn, \$3, 60 feet front; 5 cents each foot over; pumping system; range of pressure in main from 90 to 100 pounds; 12-inch intake pipe; main line, 10-inch; others, 8-inch, 6-inch and 4-inch; 15 dead ends, cleaned several times a year; a flushtank at nearly every dead end; pumps operated by steam; cost entire works to date, \$60,000; total bonded debt at date, \$43,000, issued 1895, at 4 per cent, and due in 1915; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate system; size of discharge pipe, 10 inches in diameter; construction begun in 1901; original expenditure about \$51,000; no additional expenditure; three-fourths of area sewered; 507 4-inch house connections; 115 manholes; 63 lampholes; 29 flushtanks; one-eighth of sewered locality paved with macadam; sewage finally empties into Silver lake, about one mile from business section. There are no houses on stream below discharge; flushtank used to clean sewers; no sewage pumped; total bonded debt, \$54,000, issued 1901 at 3 $\frac{1}{2}$ per cent; bonds, serials, two taken up each year.

PHELPS (Incorporated Village), Ontario County.

Population: 1890, 1,336; 1900, 1,306; 1905, 1,352.

Supply furnished by municipality; construction of water-works began in 1890; original outlay, \$28,000; no purification process employed; tests of purity made by State Board of Health; no complaints received of purity for over two years; one covered domestic reservoir, 20,000 gallons; one uncovered fire reservoir, 100,000 gallons, and one uncovered reserve reservoir, 40,000 gallons; annual expenditure for examining and controlling purity of water supply, about \$50 per year, by a watchman who resides on the ground; nearly all of watershed owned by municipality; \$75 expended for inspecting, plumbing and distributing system; no rain-gauge records kept; no other municipality obtains water from the same watershed; no pollution exists; average daily yield, about 40,000 gallons; source of supply has never failed; about one-third of residents are supplied from public supply, two-thirds from other sources, wells; number of houses within the municipality, about 450; 6 1-inch service taps, and 240 $\frac{1}{4}$ and $\frac{1}{2}$ -inch; 48 meters

and 52 hydrants; annual income, about \$725 by meter, \$875 otherwise; meter charges to large consumers, 20 cents per 1,000 gallons; regular rate, 30 cents; water rates: one house, one family, five rooms or less, one faucet, \$5; each additional room to number of fifteen, 50 cents; one house, one family, over fifteen rooms, one faucet, \$10; each additional faucet, \$1; water-closets, first one, \$4; each additional, \$3; gravity system; daily consumption, 30,000 gallons; pressures in main, 65 to 85 pounds; about 10 miles of pipe, 4 and 9-inch mains; 10 or 12 dead ends, cleaned several times each year; cost of repair per year per mile of pipe, not to exceed \$10; cost of entire works to date, \$28,000; total bonded debt to date, \$28,000; no sinking fund; do not pay for use of fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

No public sewer system; private cesspools and drains.

PHILMONT (Incorporated Village), Columbia County.

Population: 1890, 1,818; 1900, 1,964; 1905, 1,971.

Supply furnished by municipality; obtained from lake; construction begun in 1896; original outlay, \$40,000; \$400 additional expenditure in 1905; no purification process; chemical tests of purity; no complaints received of quality; storage reservoir, capacity of 700,000 gallons; two days' supply; not covered; no source of supply other than public supply; 86 acres drainage area; sanitary condition of watershed controlled by commissioners; shed not owned by municipality; one superintendent inspects plumbing system; no other municipality obtains water from the same shed; no pollution; supply never failed; 1,500 persons supplied from public supply; 500 houses within the municipality; 300 $\frac{1}{2}$ -inch service taps in use; 25 bathtubs; 30 closets; 450 sinks; 600 faucets, 300 meters, and 56 4-inch hydrants; income by meter, \$3,000 per year; meter rates, 6 cents per 1,000 gallons for manufacturing, and 20 cents per 1,000 gallons for domestic use; gravity system; pressure in main, 40 to 155 pounds; 8 miles 4-inch to 12-inch pipe in use; 4 dead ends, with hydrants at end, flushed each month; cost of repairs, \$25 per year per mile of pipe; cost of entire works to date, \$51,400; total bonded debt at date, \$42,000, payable in instalments of \$2,000, beginning 1906; issued 1896, at $3\frac{1}{4}$ per cent.; no sinking fund; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools.

PHOENIX (Incorporated Village), Oswego County.

Population: 1890, 1,466; 1900, 1,532; 1905, 1,524.

Private water supply, furnished by Phoenix Fuel, Light and Water Company; supply obtained from Oswego river; water is furnished for fire protection and manufacturing purposes, but not for domestic purposes; construction begun in 1878; company contemplates furnishing water for domestic purposes in 1906.

SEWAGE DISPOSAL.

Storm sewers; construction of sewer system contemplated.

PIKE (Incorporated Village), Wyoming County.

Population: 1890, 483; 1900, 458; 1905, 457.

Supply furnished by Bliss Water Supply Company; obtained from springs; construction begun in 1896; original outlay, \$10,000; one covered storage reservoir with a capacity of 150,000 gallons; superintendent and assistant have charge of inspections of plumbing and distributing system; source of supply never failed; about 300 persons supplied; 80 houses within municipality; 17 $\frac{1}{2}$ -inch and 19 $\frac{1}{4}$ -inch service taps in use; 4 bathtubs; 4 water-closets; 48 washtubs; 60

faucets, and 10 standard hydrants; income per annum, \$757.23; gravity system; 4 dead ends, cleaned four times a year; cost of repairs per mile of pipe per annum, less than \$5; cost of entire water-works to date, \$10,000; municipality pays \$180 annually for fire protection.

SEWAGE DISPOSAL.

No sewers.

PITTSFORD (Incorporated Village), Monroe County.

Population: 1890, 852; 1900, 1,000; 1905, 1,056.

Supply owned and operated by municipality; source, deep wells, 140 feet; construction begun in 1898; original outlay, about \$18,000; no additions; water not subjected to purification; State Board of Health test shows excellent for drinking, but too hard for laundry purposes; no complaints received concerning turbidity, odor, etc.; capacity of reservoir, about 600,000 gallons; 30 days' supply; no other supply in addition to public; no expenditure for examining and controlling purity of supply; no portion of watershed owned by municipality; no inspection of plumbing and distributing system is maintained; no rain-gauge records kept; no other municipality obtains water from the same watershed; source of supply has never failed; about 600 persons now supplied from public supply, and 450 from wells; average daily consumption per inhabitant, 15 gallons; for domestic purposes, 3 gallons; for commercial purposes, 3 gallons; wasted, 9 gallons; number of houses within municipality, 250; 143 service taps, mostly $\frac{1}{2}$ -inch, a few $\frac{3}{4}$ -inch; no bathtubs; 30 water-closets, 35 meters in use; 26 6-inch and 17 4-inch hydrants; annual income by meter, about \$300; otherwise, \$500; meter charges, \$6 per 18,000 gallons; pumping system; about 6,000,000 gallons pumped annually; average static head of pumps, 120 feet; ranges of pressure in main, 55 to 75 pounds; sizes and lengths of pipe in use: 4,848 feet 8-inch, 7,584 feet 6-inch, 6,578 feet 4-inch; total, 19,010 feet; 6 dead ends, occasionally cleaned in winter; sprinkling cranes are attached to 3; these are in use all summer; power, gasoline engine; cost of pumping 61 $\frac{1}{2}$ cents per 1,000,000 gallons, raised one foot high; figured on fixed charges, and operating and maintaining expenses. \$1.52; cost of entire water-works to date, \$18,000; total bonded debt at date, \$16,000, at 4 per cent., issued 1898; due 1913-1929; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools; no construction contemplated.

PORT BYRON (Incorporated Village), Cayuga County.

Population: 1890, 1,105; 1900, 1,013; 1905, 1,016.

Supply furnished by municipality; obtained from Owasco lake; construction begun in 1876; original outlay, \$12,000; \$600 additional expenditure in 1905; water is not used for domestic purposes; one reservoir, 40 feet by 80 feet by 12 feet; no source of supply other than public supply; drainage area, 220 square miles; watershed not owned by municipality; village trustees inspect plumbing system at no expense; Auburn obtains water from same shed; Auburn sewage empties into lake above the intake point; supply never failed; 100 persons supplied, for sprinkling, etc.; income in 1905, \$335; gravity and pumping system; average static head of pumps, 65 pounds; average dynamic head, 85 pounds; pressure in main, 50 to 100 pounds; 4-inch and 6-inch pipe in use; pumps operated by water; no bonded debt at date; municipality does not pay for use of water for fire protection.

SEWAGE DISPOSAL.

No sewers.

PORT DICKINSON (Incorporated Village), Broome County.

Population: 1890, 345; 1900, 379; 1905, 426.

Supply bought by meter from Binghamton City Water-works.

STATE WATER SUPPLY COMMISSION.

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SEWAGE DISPOSAL.

No sewer system.

PORT LEYDEN (Incorporated Village), Lewis County.

Population: 1890, 462; 1900, 746; 1905, 717.

Supply furnished by municipality; obtained from springs; construction begun in 1897; original outlay, \$17,200; about 8 or 10 wells in addition to public supply; 166 houses within municipality; 97 $\frac{1}{2}$ -inch, 61 $\frac{3}{4}$ -inch, 1 1-inch, 1 $\frac{1}{4}$ -inch and 1 4-inch service taps in use; 11 bathtubs; 28 water-closets; 243 washtubs, and 402 faucets; income for 1905, \$1,544; gravity system; pressures in main, 90 pounds; 8-inch and 4-inch pipe in use; cost of entire water-works to date, \$18,000; total bonded debt, \$12,800; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system; cesspools.

POTSDAM (Incorporated Village), St. Lawrence County.

Population: 1890, 3,961; 1900, 3,843; 1905, 4,162.

Supply furnished by the municipality from the Raquette river; construction commenced in 1871; original outlay, \$50,000; no additions since; water not purified; no tests of the purity made; no complaints received; no reservoirs; sanitary conditions of watershed not controlled; no expense incurred for inspection; no rain-gauge records; no stream gaugings; no other municipality obtains water from river above the intake; source of supply never failed; 3,710 persons supplied from the public supply, 310 from other sources; average daily consumption per capita, 160 gallons; 784 houses within the municipality; 1,420 $\frac{1}{2}$ -inch, 120 1-inch service taps in use; 290 bathtubs; 511 water pipes; 910 washtubs; 4,160 faucets; 85 4-inch hydrants; annual income, \$8,000; no meters used; system is pumping, pumps operated by water; total bonded debt, \$15,000, 3 per cent.; municipality does not pay for fire protection.

PULASKI (Incorporated Village), Oswego County.

Population: 1890, 1,517; 1900, 1,493; 1905, 1,575.

Supply furnished by municipality; obtained from springs; construction begun in 1896; original outlay, \$25,000; additions since, \$5,000; supply never failed; 362 $\frac{1}{2}$ -inch service taps in use; 46 2 $\frac{1}{2}$ -inch hydrants; pumping system; average static head, 85 feet; pressures in main, 40 pounds; 2 dead ends, cleaned once a month; pumps operated by water; total bonded debt, \$25,000; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Combined system of sewers.

RED CREEK (Incorporated Village), Wayne County.

Population: 1890, 492; 1900, 480; 1905, 490.

No public water supply.

REMSEN (Incorporated Village), Oneida County.

Population: 1890, 358; 1900, 389; 1905, 399.

No public water supply; water obtained from the side hills on both sides of the village; a few wells in addition to supply mentioned above; 125 houses within the municipality.

SEWAGE DISPOSAL.

No sewers have been constructed; sewage runs into creek which runs through the village; no construction of sewers contemplated.

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ROSENDALE (Incorporated Village), Ulster County.

Population: 1895, 1,706; 1900, 1,840; 1905, 1,399.

Supply furnished by municipality; obtained from springs; construction of works begun in 1900; original outlay, \$45,400; no additional expenditure since; no purification process employed; no filters used; no tests of purity have been made; no complaints received of the quality; one 4,000,000 gallon reservoir for storage and distribution; drainage area, about 10 acres; no expenditure for examining and controlling purity; about 3 acres of watershed owned by municipality; superintendent employed at a salary of \$100 to inspect plumbing and distributing system; no rain-gauge records kept; no gaugings taken; no municipality obtains water from watershed; no pollution exists; source of supply has never failed; about 775 persons supplied from public supply; the balance from wells and springs; 91 $\frac{3}{4}$ -inch service taps in use; 9 bathtubs; 21 water-closets; 100 washtubs, sinks and basins; 100 faucets; no meters in use; 7 1-inch hydrants; annual income, about \$1,100; water system, gravity; auxiliary pump, only used three weeks during 1905, owing to extreme drought; average static head against which the pumps work is 200 feet; pressure in main, from 120 to 130 pounds; about five miles length of pipe, 4, 6, 8, 10 inches in size; 4 dead ends, cleaned about every two months; cost of repairs do not exceed \$100 per mile of pipe; pumps operated by steam; cost of entire works to date does not exceed \$45,500; total bonded debt at date, \$38,000, issued 1905; interest, 3.85 per cent.; no sinking fund at date; municipality does not pay for use of water for fire protection; no separate supply and distributing system for fire protection.

SEWAGE DISPOSAL.

No public sewers.

RUSHVILLE (Incorporated Village), Ontario and Yates Counties.

Population: 1890, 450; 1900, 416; 1905, 500.

No public water supply. No public sewers.

RYE (Incorporated Village), Westchester County.

Population: 1902, 3,535; 1905, 4,076.

Supply furnished in part by New York Interurban Co. See MT. VERNON, Report of 1907. See RYE, Report of 1906.

SACKETTS HARBOR (Incorporated Village), Jefferson County.

Population: 1890, 787; 1900, 1,266; 1905, 903.

No public water supply; nearly every house has a private well and cistern; village maintains two public wells; about 125 wells blasted and drilled in the rock; 220 houses within municipality and 40 business houses; about 2,000 feet 6-inch pipe line, into which water is pumped from the lake with steam fire engine and distributed through hydrants along the line for fire protection only; and this system is owned and maintained by the village.

SALEM (Incorporated Village), Washington County.

Population: 1900, 1,391; 1905, 1,313.

No public water supply.

SAVANNAH (Incorporated Village), Wayne County.

Population: 1890, 505; 1900, 573; 1905, 544.

No public water supply; municipality does not pay for use of water for fire protection; two large underground cisterns in business district furnish water for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; 24 inches diameter discharge pipes; construction begun in 1867; original expenditure about \$1,000; no additions since; 22 6-inch house connections; 7 surface connections, 24 inches by 24 inches; none

of seweraged locality paved; no sewage treated; sewers cleaned annually at .25 cents per lineal rod; no sewage pumped; \$75 annual charge for operating and maintaining system.

SCHOHARIE (Incorporated Village), Schoharie County.

Population: 1890, 1,028; 1900, 1,006; 1905, 1,021.

Supply furnished by municipality; obtained from spring owned by village; construction begun April, 1905, completed and accepted September 23, 1905; no purification process employed; no complaints received of the quality; 1 reservoir, capacity 350,000 gallons, for storage and distribution; wells are used in addition to public supply; no contamination on watershed, spring being on mountainside, securely fenced, no buildings above it; watershed not owned by the municipality; spring flows 200,000 gallons per day, has not changed materially in past 30 years; no other municipality obtains water from same shed; source of supply has never failed; 62 $\frac{1}{2}$ -inch, 4 $\frac{3}{4}$ -inch and 2 $\frac{1}{2}$ -inch service taps in use; system, gravity; pressure in main, 80 to 90 pounds; 5 dead ends, cleaned often; cost of entire works to date, \$29,600; total bonded debt, \$30,000, issued February 20, 1905, at 3.7 per cent.; municipality does not pay for use of water for fire protection.

SEWAGE DISPOSAL.

No public sewers have been constructed; sewage disposed of by cesspools.

SCOTIA (Incorporated Village), Schenectady County.

Population: 1905, 2,166.

Supply furnished by municipality; obtained from 7 driven wells; construction begun 1905; original outlay, \$90,000; tests of purity made by State Board of Health; 1 standpipe, with a capacity of 100,000 gallons; inspection of plumbing maintained at a cost of \$1,000 per annum; about 650 persons supplied; 109 $\frac{1}{2}$ -inch service taps in use, 75 bathtubs, 75 water-closets, 109 washtubs, 109 meters and 135 6-inch double hydrants; minimum meter charges, \$1.50 per quarter, all above minimum from 8 cents to 18 cents per 1,000 gallons; pumping system; 100 pounds average static head; pressures in main from 69 to 84 pounds; 4-inch to 12-inch pipe in use; 5 dead ends, cleaned once a month; pumps operated by electricity; cost of entire works to date, \$90,000; total bonded debt at date, \$90,000, issued at 3.9 per cent. and 4.5 per cent., \$100 due yearly from 1910 to 1930; municipality will pay \$3.50 per 1,000 gallons of water used for fire protection.

SEWAGE DISPOSAL.

Public sewers; separate system; construction begun 1905; system designed by village engineers; original expenditure, \$30,000; $\frac{1}{2}$ of locality seweraged; 75 4-inch house connections; 20 manholes; sewage disposed of into Mohawk river; sewage will be treated when plant is completed; contract for purification plant is let; cost of sewerage system, \$30,000; total bonded debt, \$50,000, issued 1905, due from 1910 to 1930 in annual equal amounts.

SEA CLIFF (Incorporated Village), Nassau County.

Population: 1900, 1,558; 1905, 1,750.

Supply furnished by Sea Cliff Water Company; obtained from driven wells 60 feet deep; pumping station and wells on shore point; supply pumped by steam boilers to standpipe, about 4,000 feet distant from wells; elevation of 175 feet from pumps to bottom of standpipe; old plant constructed in 1872, new plant in 1890; original outlay of new plant about \$30,000; additional expenditure every year since 1890; no purification process; no test of purity, no complaints of quality; iron standpipe, capacity of 235,000 gallons; shed not owned by municipality; source of supply never failed; about 2,250 persons supplied from public supply; about 500 houses within municipality; 3 meters in use; 46 $\frac{1}{2}$ -inch nozzle hydrants; income, \$7,500 per annum; minimum annual water rates, \$15; pumping system to standpipe; gravity distribution; average static head, 123 pounds; 20,000 feet 2-inch, 19,000 feet 4-inch, 10,000 feet 6-inch and 4,000 feet

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8-inch pipe in use; 2 or 3 dead ends, cleaned when necessary; pumps operated by steam; cost of entire works to date about \$50,000; municipality pays \$27.50 for each hydrant per annum, for use of water for fire protection, 45 hydrants; no separate water supply for fire protection.

SEWAGE DISPOSAL.

No sewers.

SILVER CREEK (Incorporated Village), Chautauqua County.

Population: 1890, 1,678; 1900, 1,944; 1905, 2,073.

Supply furnished by municipality; construction begun in 1898; original outlay, \$60,000; additional sum of \$15,000 expended in 1905; no filters; several tests have been made of purity, no data furnished; no complaints of quality of water; reservoir contains 3,000,000 gallons; springs are used in addition to public supply; no account kept of expenditure for examining and controlling purity of supply; very small portion of watershed owned by the municipality; one man employed to inspect plumbing and distributing system at about \$600 per year; no rain-gauge records kept; no other municipality obtains water from same watershed, no pollution exists; average daily yield not known; source of supply failed about 1900; about 1,500 persons supplied from public supply; no meters used; 200 houses within the municipality; 200 service taps in use; 100 bathtubs; 100 water-closets; 200 washtubs, sinks and basins; 500 faucets; 20 meters; 28 hydrants; income by meter to railroad, \$6,000, otherwise, \$3,000; meter charges graded according to consumption; water rates for ordinary household use for one family, first faucet, \$4.50; each additional faucet, 50 cents; water-closets, self-closing, \$2.50; washtubs, permanent, not exceeding 3, \$3.50; for factories, mills and shops, 1 faucet, \$5 to \$25; system is gravity, and also pumps when required; pressure in main, 110 pounds; 15 miles of pipe in use, 4-inch, 6-inch, 8-inch, 10-inch and 12-inch; about 5 dead ends, cleaned often; pumps operate by steam; cost of entire works to date, \$75,000; total bonded debt at date, \$75,000; sinking fund at date about \$3,000; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Private sewers have been constructed, about 200 house connections; size of connecting pipes, 4-inch to 12-inch; none of seweried locality paved; the construction of a system of sewers is contemplated; present final disposal of sewage into creeks; no sewage treated before discharge.

SINCLAIRVILLE (Incorporated Village), Chautauqua County.

Population: 1890, 510; 1900, 577; 1905, 507.

Supply furnished by municipality; obtained from springs; construction begun in 1892; plant installed by private ownership and purchased by the village in 1899; no purification process; no complaints received of quality; one storage reservoir with a capacity of 1,100 barrels, covered; no other source in addition to public supply; municipality owns right of way of pipe line; no other municipality obtains water from same shed; no pollution; supply never failed; 300 persons supplied from public supply; 150 houses within the municipality; 100 $\frac{1}{4}$ -inch and $\frac{3}{4}$ -inch service taps in use; 20 bathtubs; 24 water-closets; income, \$600 per year; water rates, one family, \$6; each additional, \$1; bathtub and closet, when used together, \$5; either separate, \$3; gravity system; pressure in main, 40 to 80 pounds; 2-inch to 6-inch pipe in use; 3 dead ends, cleaned about 4 to 6 times a year; cost of entire water-works to date, \$7,000; total bonded debt at date, \$6,000, issued January 1, 1900, at 4 per cent., and payable in installments of \$500 a year, beginning January 1, 1905; sinking fund at date, \$500; municipality pays interest on bonds for use of water for fire protection.

SEWAGE DISPOSAL.

No sewers.

SOUTH NYACK (Incorporated Village), Rockland County.

Population: 1890, 1,496; 1900, 1,601; 1905, 1,848.

Supply furnished by water commissioners of the village of Nyack, and a very small supply furnished by Onderdonk Water Works for private consumers only; village fire system supplied by village of Nyack.

SEWAGE DISPOSAL.

Public sewers have been constructed; no separate storm and house sewers; about 9 years ago the trunk line of the new system was constructed; original expenditure, \$20,000; 1 new sewer has since been added to sewage system, and repairs made; sewage is finally disposed of in river; sewers are cleaned by flushing; no sewage is pumped; total bonded debt, \$20,000, at 3½ per cent., final payment November 1, 1906; no sinking fund at date; no men employed solely to operate and maintain sewer system.

SPRING VALLEY (Incorporated Village), Rockland County.

Population: 1905, 2,583.

Supply furnished by Hackensack Water Company (for previous report, see Report of 1906): supply obtained from 2 6-inch driven wells; construction begun 1893; in 1901 a new pump house, boiler and pump were added; 1 abandoned reservoir, with a capacity of about 212,000 gallons, and one standpipe in use with a capacity of 230,000 gallons; mill plant is owned by municipality; 800 persons supplied; daily per capita consumption, 54 gallons; 157, mostly ¾-inch, service taps in use; 5 meters and 29 4-inch hydrants; income per annum, \$3,020; water rates, in private dwelling-houses per annum, bath, \$3; closet, \$3; yard hydrants, \$10, and \$10 per month per cart for street sprinkling; meter rates, ranging from ¼-inch meter \$5 per quarter, to 6-inch meter, \$96 per quarter; pumping system; in 1902 15,450,000 gallons were pumped; in 1903, 14,300,000 gallons; in 1904, 15,250,000 gallons, and in 1905, 15,800,000 gallons; pressures in main from 25 to 80 pounds; dead ends cleaned when requested; duty of pumps in foot-pounds, 9,400,000 per 100 pounds of coal; cost per 1,000,000 gallons raised 1 foot high, 45 cents; total bonded debt, \$6,000, being first mortgage 6 per cent. bonds, due 1908; municipality pays \$540 annually for fire protection.

SEWAGE DISPOSAL.

No public sewers.

SPRINGVILLE (Incorporated Village), Erie County.

Population: 1890, 1,883; 1900, 1,992; 1905, 2,230.

Supply furnished by municipality; obtained from springs and artesian wells; construction begun by private corporation and purchased by village in 1897; original outlay, \$28,000; in 1902 mains were extended and street hydrants added at a cost of \$6,000; complaints received as to odor, at rare intervals in latter part of summer, from stub ends, but since additions to plant most stub ends cut out; 2 storage reservoirs, 1 covered, 24 feet diameter by 6 feet, and 1 uncovered, 100 feet by 30 inches by 9 feet; the supply from the artesian wells is pumped direct into mains, a small supply is also furnished from 2 springs; no other municipality obtains water from the same shed; source of supply never failed; about 1,000 people supplied from public supply and 1,500 from other sources; 450 houses within municipality; 116 bathtubs; 142 water-closets; 110 washtubs, sinks and basins; 375 faucets; 1 meter and 50 4-inch hydrants; income per year about \$2,500; pumping system; pressures in main from 20 to 75 pounds; from 2 to 12-inch wooden pipe in use; 12 dead ends, cleaned every month; pumps operated by water power, owned by village; cost of entire water-works to date \$34,000; total bonded debt at date, \$33,600, at 4 per cent.; \$28,000 due 1927, \$400 due 1906 and \$400 annually thereafter; municipality does not pay for fire protection,

SEWAGE DISPOSAL.

No public sewer system; water disposed of in cesspools and in private sewers that empty into streams.

STAMFORD (Incorporated Village), Delaware and Schoharie Counties.

Population: 1890, 819; 1900, 901; 1905, 973.

Supply owned and operated by Stamford Water Co.; obtained from springs; construction begun 1883; original outlay, \$20,000; additions 1893 cost \$15,000; water subject to purification process, by 3 mechanical filters; sand and pea gravel used in filters, purchased from Cape May Sand Co., Cape May, N. J.; original filter was charcoal, not satisfactory; changed to present system at cost of \$4,000; cost of treatment, \$9 per month, for washing out filters; no complaints of quality received; 1 uncovered reservoir, 1 month's capacity; extent of drainage area, 1 square mile; 5 acres of watershed owned by company; no inspection of plumbing is maintained; no rain-gauge records; no gaugings of supply; no other municipality obtains water from same watershed; no pollution exists; source of supply never failed; about 900 people supplied from public supply; 11 wells in use, supplying about 34 people; number of houses, 215; $\frac{3}{4}$ -inch taps; 1 meter; 30 4-inch hydrants; income derived by meter, \$2,800, otherwise, \$4,200; meter charges, 15 cents per 100 gallons; system, gravity; ranges of pressures in main, 80 to 120 pounds per square inch; size and length of pipe in use, 700 feet 6-inch, 9,350 feet 4-inch, 15,250 feet 8-inch; 2 dead ends, blown every month; entire cost of water-works to date, \$60,000; no bonds, no sinking fund; municipality pays for the use of water for fire protection, \$20 per hydrant; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Public sewers constructed; house sewers only; final discharge pipe, 12 inches; construction of sewers begun 1893; original expenditure, \$20,000; at least 9-10 of the locality is seweried; additions, 1897, about \$800; 1904, \$650; 1905, \$3,000; about 200 houses; size of connections, 4 inches; 4 to 5 manholes per 1,000 feet of sewer, 38 manholes in all; chemical disposal works approved by State Board of Health; final discharge into Delaware river; disposal works consist of 2 vats; no changes made since installation; cost of sewage treatment, \$100 to \$150 per year; cost of sewage system, \$24,450, including disposal works; sewers cleaned twice a year at cost of \$15 per mile; no sewage pumped; total bonded debt of system, \$12,000, issued 1893 at 4 per cent.; \$500 payable annually, beginning 1908; no sinking fund; board of sewer commissioners inspect the work and employ occasionally 1 to 3 men.

STILLWATER (Incorporated Village), Saratoga County.

Population: 1890, 747; 1900, 1,007; 1905, 923.

No public water supply.

SUFFERN (Incorporated Village), Rockland County.

Population: 1900, 1,619; 1905, 2,655.

Supply owned and operated by municipality; construction begun 1890; outlay, \$40,000; additions in 6 years, \$7,200, purification process installed; sand and charcoal filters; test for purity made by State Board of Health; last test two years ago; sending samples, 1906, for new test; complaints of quality due to slight taste of vegetation when lake is working, during months of July and August; capacity of distributing reservoir, 250,000 gallons, about 2 days' supply; supply obtained from stream, whose source is about 7 or 8 miles above lake; sanitary condition ascertained by Board of Health; no expense; no part of watershed owned by municipality; supply controlled by perpetual lease; general inspection by engineer of system; no rain-gauge records and no gaugings of stream; no other municipality obtains water from same shed; source of supply never failed; 2-3 of population supplied from public supply, 1-3 from wells; average daily consumption, 50 gallons per person; number of houses about 500; 350 $\frac{3}{4}$ -inch taps; 150 bathtubs; 200 water-closets; 25 washtubs, sinks and basins;

700 faucets; 50 meters; 68 6-inch barrel hydrants, with 2 2½-inch outlet; annual income, \$3,150; meter rates, \$8 per first 30,000 gallons; excess, 20 cents per 1,000; first tap, \$8; additional tap, \$4; bathtub and basin, \$1.60; water-closet, \$1.60; each additional family, \$8; lawn sprinkler, \$4 for 6 months; system pumping, gas engine; 40,000,000 gallons pumped per annum; static head of pumps about 80 pounds; ranges of pressure in main, 75 to 90 pounds; 12 dead ends, cleaned once a month in summer; annual cost of repairs of pipe, \$25.30 per mile; cost of pumping, \$35 to \$37.50 per million gallons; cost of entire water-works to date, \$50,000; total bonded debt, \$35,000, issued 1899, due commencing 1904; interest rate, 3% per cent.; no hydrant tax, separate water supply for fire protection.

SEWAGE DISPOSAL.

No sewers; cesspools.

TARRYTOWN (Incorporated Village). Westchester County.

Population: 1890, 3,562; 1900, 4,770; 1905, 5,370.

Public water supply, owned and operated by the village; source, Storm brook, a tributary to the Neperan river; watershed for the most part owned privately; original works begun for fire purposes only, 1870; artesian well system in 1880; dug well system in 1887; present storage reservoir in 1896; original outlay, fire purposes only, total, \$10,405.27; artesian well system, \$20,809.50; dug well and present storage system, \$488,069.43; the acts of the latter two systems have not been separated; additions to the original system, 1876 to 1880, \$19,405.27; artesian system, 1880 to 1887, \$20,404.23; dug well system, 1887 to 1896, and storage reservoir system, 1896 to date, \$488,069.43; total cost to March 1st, \$527,878.93. Water subject to purification process; mechanical filtration on Federal Filtration system; low service, 3 tanks, 8x25 feet, 250,000 gallons every 24 hours; high service, 2 tanks, 8x25 feet, 250,000 every 24 hours; total filter capacity, 2,500,000 gallons in 24 hours; no sedimentation basin necessary, no aeration at filter, fountains at distributing reservoirs, these latter not covered; loss of head, less than 4 pounds; filters washed every day; silica sand used, obtained near Long Branch; purification of present purification plant separate and distinct from original plant; original purification by interfiltering wells and pipe, and now abandoned; cost of new system approximately \$31,000. running expenses not yet determined. Before filter was installed analyses of all waters entering the storage reservoir were made, including plating and glucose bullion; since filters have been installed, no chemical tests, but gelatine plates daily, except Sunday, and tests for alum; no complaints received. Storage reservoirs, 250,000,000 gallons, high service tank (reserve), 150,000 gallons; high service open reservoir approximately 1,000,000 gallons, both distributing; low service distributing reservoir, open, 1,000,000 gallons; low service, covered reservoir, 200,000 gallons. A few wells are used in addition to public supply. Drainage area, 800 acres. Sanitary condition ascertained by inspection, and under rules and regulation of State Board of Health; annual expenditure for examining, \$250; \$20 a month for the scavenger, and the balance miscellaneous; this does not include about \$200 for cleaning water plants in lakes (sulphate of copper treatment), etc. About 130 acres, including lakes, roads, etc., of watershed is owned by the municipality; balance is private property, and a large part belonging to John D. Rockefeller. All private consumers are metered; rain-gauges established in 1903, at the pumping station and in the village; no other municipality obtains water from the same watershed; no pollution exists, except general polluting conditions, such as from railroad, highway, etc; average daily yield, 1,000,000 gallons per day; source of supply has never failed; 4,500 to 4,600 persons are supplied by the village. Average daily consumption per inhabitant, measured by pump displacement, 130 gallons; but only 40 per cent. accounted for by meter; probably 40 per cent. is used by the village for public purposes. Total number of taps to March 1, 1906, 886; number of meters in actual use, 1905, was 721; hydrants, 180 4-inch and 6-inch double nozzle. Income derived from consumers, 1905-6, \$18,416.35; from maintenance, repair and all other

accounts, \$811.09. Meter charges graded according to consumption; for high service, first 4,000 cubic feet, at the rate of \$3 per 1,000; all additional, \$1.50 per 1,000 feet; low service, first 4,000 feet, \$3 per 1,000; next 6,000 feet at \$1.50; next 60,000 at \$1 per 1,000; next 10,000 at 80 cents per 1,000 feet; all over 160,000 feet at 70 cents per 1,000 feet; no flat rates. Entire system pumping; water pumped per annum, 1902-3, 304,600,000 gallons; 1903-4, 203,964,000; 1904-5, 224,250,000; 1905-6, 240,198,000 gallons; average static head against which pumps work; high service approximately 126 pounds, low service approximately 40; average dynamic head against which the pumps work: high service, approximately 130 pounds; low service, 90 pounds; ranges of pressure in the main, 30 to 190 pounds; size and length of pipes in use, 639 feet 2-inch, 719 feet 3-inch, 42,746 feet 4-inch, 36,467 feet 6-inch, 11,611 feet 8-inch, 18,338 feet 10-inch, 3,022 feet 12-inch, 2,656 feet 14-inch, 130 feet 16-inch, 1,450 feet 24-inch; total, 117,778 lineal feet; dead ends: high service 12, low service 12; cleaned every week or 2 weeks in summer; in winter not so often; pumps operated by steam; duty of pumps in foot pounds, per 100 pounds of coal burned, Nos. 1 and 2 engines, 70,000,000; No. 3 engine, 45,000,000; No. 4 engine, between 35,000,000 and 40,000,000; cost of entire water-works to March 1, 1906, \$527,878.95; bonded debt on March, 1906, \$360,000, at 4 per cent, and \$40,000 at 3½ per cent.; no sinking fund; municipality does not pay for fire protection; no separate water supply for fire protection.

THERESA (Incorporated Village), Jefferson County.

Population: 1890, 1,028; 1900, 917; 1905, 892.

Supply furnished by municipality; obtained from Indian river; construction begun 1896; original outlay, \$20,500; complaints of quality received occasionally after heavy rains, spring and fall; 1 reservoir 20 by 60 feet; 60 wells and springs used in addition to public supply, few using water from system for drinking purposes; drainage area covers 300 square miles; sanitary condition watershed not controlled, except under attention of health officers; inspection plumbing and distributing system made by the clerk of board of water commissioners; Antwerp obtains its supply from the same river, 20 miles above; the drainage of the villages of Antwerp and Philadelphia, from 15 to 20 miles away, pollutes supply; source of supply never failed; 500 persons supplied from public supply and about 500 from other sources; average daily per capita consumption, 30 gallons; 310 houses within municipality; ¾-inch service taps in use; 38 bathtubs; 42 water-closets; 2 washtubs; 130 faucets; 1 meter and 35 3-inch hose fire hydrants; income per annum, \$680; meter rates, from 100 to 200 gallons per day, 4 cents per 100 gallons; 200 to 600, 3½ cents; 600 to 1,000, 3 cents; 1,000 to 1,500, 2½ cents; 1,500 to 2,000, 2 cents; 2,000 to 4,000, 1½ cents, and from 4,000 or more per day 1 cent per 100 gallons; private dwellings, 1 faucet \$5, each additional 50 cents; bathtub, \$3; each additional, \$1; water-closet, \$3; each additional \$1; pumping system; pressures in main from 35 to 80 pounds; 4-inch to 10-inch pipe in use; 8 dead ends, cleaned 3 to 4 times per year; cost of repairs per mile of pipe per year, \$75; pumps operated by water-wheel; cost of pumping under contract for \$500 per year; cost of entire water-works to date, \$20,500; total bonded debt, \$20,500, \$18,000 issued 1896 at 3½ per cent., for 30 years, and \$2,500 issued 1897 at 4 per cent., for 10 years; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Separate public storm sewers; private system for house sewage; private sewage discharge pipe 8 inches in diameter; has steep grade: construction of sewers for house sewage begun in 1899; original expenditure, \$1,000, in 1900; additional expenditure, \$200; about ¼ of locality sewerized; 40 4-inch house connections; no surface connections to house sewers, excepting from house roofs, some of which discharge water into sewer; sewage finally empties in the river; cleaning of sewers unnecessary on account of grade.

TICONDEROGA (Incorporated Village), Essex County.

Population: 1890, 2,267; 1900, 1,911; 1905, 1,749.

Supply furnished by municipality; construction begun in 1892; original outlay, \$90,000; no additional expenditure; purification process by means of coke filter, so arranged as to be washed when necessary; purification plant at present installed the same as the original plant; no cost, except care of plant; tests of purity made; occasional complaints of quality in autumn; no other source of supply in addition to public supply; no portion of watershed owned by municipality; superintendent and 2 other men inspect plumbing and distributing system at cost of \$2,000; no pollution; source of supply never failed; 3,500 persons supplied from public supply; income in 1905, \$6,566.65; gravity system; pumping station in case of emergency; 180 pounds pressure in main; 2 miles 12-inch pipe; no dead ends; pumps operated by steam; total bonded debt, \$10,000, payable August 1, 1907; \$15,000 payable August 1, 1912; \$17,000 payable August 1, 1917, and \$20,000 payable August 1, 1922, at 4 per cent.; sinking fund at date, \$8,000; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Private sewers; 4-inch and 6-inch house connections; sewered locality not paved; construction of sewers contemplated; sewage not treated.

TONAWANDA (City), Erie County.

Population: 1890, 7,145; 1900, 7,421; 1905, 7,904.

Supply furnished by municipality; obtained from Niagara river; construction begun in 1892; no purification process; no tests of purity; no complaints received of quality; plumbing system inspected at cost of \$60 per month; no municipality obtains water from the same shed; Buffalo sewage empties into river above intake point; supply never failed; 7,500 persons supplied from public supply; 2,000 houses within the municipality; 1,500 ¾-inch service taps in use; 1,000 bathtubs; 1,000 closets; 8 meters, and 268 4-inch hydrants; \$15,000 annual income; direct pumping system; 1,668,101,700 gallons pumped in 1905; average head, 50 pounds per square inch for domestic use; 75 to 100 pounds for fire; 8 dead ends, cleaned once a month; pumps operated by steam; 90,000,000 foot-pounds duty of pumps per 100 pounds of coal burned; cost of entire water-works to date, \$245,000; municipality does not pay for use of water for fire protection; no separate water supply for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; 48-inch diameter trunk sewers; 1,200 4-inch to 6-inch house connections; original cost, \$134,000; flush tanks discharged every 24 to 40 hours.

TULLY (Incorporated Village), Onondaga County.

Population: 1890, 498; 1900, 574; 1905, 600.

Supply furnished by municipality; obtained from well owned by village; construction begun 1896; original outlay, \$10,000; no complaints, except in hot weather, when there is a dead end in the pipe; 1 reservoir, with a capacity of 700,000 gallons; about 300 persons supplied; pumping system; 2 dead ends; pumps operated by steam; total bonded debt, \$10,000, issued 1896 at 4 per cent., due 1916; value of sinking fund, \$250; municipality pays \$420 for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

UNADILLA (Incorporated Village), Otsego County.

Population: 1890, 1,157; 1900, 1,172; 1905, 1,142.

Supply furnished by the Unadilla Water Works, obtained from natural springs, artesian wells and from Martin brook; construction begun in 1885; additions

made yearly since; water from springs runs through pipes to reservoirs and Martin brook water runs through gravel; purity tested occasionally; no complaints received of quality; total storage capacity estimated from 10,000,000 to 20,000,000 gallons; lands of water-works comprise about 120 acres; no other municipality obtains water from the same shed; no pollution; supply never failed; 45 2½-inch hose discharge hydrants, all with frost jackets; gravity system; 8-inch, 6-inch, 4-inch and 3-inch pipe in use; no dead ends, have blow-offs; when deep wells are used pumps are operated by steam; cost of entire works to date, \$100,000; no bonded debt; municipality pays \$960 for use of water for fire protection; separate water supply for fire protection in portions of the village using extra pipe lines from the Martin Brook Division.

SEWAGE DISPOSAL.

No sewers.

VALATIE (Incorporated Village), Columbia County.

Population: 1890, 1,437; 1900, 1,300; 1905, 1,231.

Supply furnished by municipality; construction begun in 1894; original outlay, \$30,000; sand and charcoal filters are used; cost of laboratory, \$85 per month; no complaints of quality; 1 standpipe; factory supplied by main pipes; board of health controls sanitary condition of watershed, and inspects plumbing and distributing system; supply never failed; about 500 persons supplied; ¾-inch connections; 50 2½-inch hydrants, some double and triple; income per year, \$1,200; pumping system; 5 dead ends, cleaned monthly; pumps operated by steam and water; total bonded debt, \$24,000, at 5 per cent.; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

Original expenditure, \$30,000; sewage disposed into creek.

VAN ETTEN (Incorporated Village), Chemung County.

Population: 1890, 567; 1900, 474; 1905, 420.

No public water supply.

VERNON (Incorporated Village), Oneida County.

Population: 1890, 377; 1900, 380; 1905, 430.

No public water supply.

VICTOR (Incorporated Village), Ontario County.

Population: 1890, 778; 1900, 649; 1905, 806.

Supply furnished by municipality; obtained from spring; construction begun in 1905; original outlay, \$2,400; extension now in construction to the amount of \$12,000; 1 reservoir at pumphouse, with a capacity of about 31,500 gallons, covered; supply never failed; 900 persons supplied; 150 houses within municipality; 16 4-inch hydrants; gravity and pumping systems; water rates, one faucet, \$6; each additional, 50 cents; bathtub, \$2; water-closets, \$3; private stable, 2 head stock, \$6; in connection with house, \$2; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No sewers.

VOORHEESVILLE (Incorporated Village), Albany County.

Population: 1900, 554; 1905, 479.

Supply furnished by municipality; obtained from 6 springs; construction begun 1901; original outlay, \$21,000; 1 reservoir, capacity of 650,000 gallons; cement basins about each spring; municipality owns about 1½ acres, where springs are located; average daily yield estimated at 100,000 gallons; source of supply never

failed absolutely, but has been low in dry periods, notably August, 1906; about 625 persons supplied from public supply; no other source except private wells; average daily consumption per capita, 100 gallons; about 125 $\frac{3}{4}$ -inch service taps in use, and 27 2 $\frac{1}{2}$ -inch two nozzle hydrants; income per annum, \$650; gravity system; pressures in main, 125 pounds; $\frac{3}{4}$ miles of 4-inch pipe from reservoir to village line, and about 2 $\frac{1}{2}$ miles of piping within the village limits; 6 dead ends, cleaned twice a year; cost of entire works to date, \$21,000; total bonded debt at date, \$21,000, issued 1901 at 4 $\frac{1}{4}$ per cent., \$1,000 due each year after 1906; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

WALDEN (Incorporated Village), Orange County.

Population: 1890, 2,132; 1900, 3,147; 1905, 3,737.

Supply furnished by municipality; construction begun in 1892; original outlay, \$30,859; in 1900 additional expenditure of \$13,237; no purification process employed; no tests made of purity; no complaints received of quality; 1 standpipe, 16 by 50 feet, capacity, 75,200 gallons; no other sources of supply in addition to public supply; 31 acres of drainage area; general health laws invoked to control sanitary condition of watershed; shed owned by municipality; superintendent of meters inspects plumbing semi-annually, cost \$100; no rain-gauge records kept; no other municipality obtains water from same shed; no pollution; average daily yield, 61,000 gallons; supply failed in 1900, at which time station No. 2 was added; 2,775 persons supplied from public supply, 1,075 other sources; average daily consumption per capita, 20 gallons; 55,500 gallons used for domestic purposes per day, 4,000 for public purposes and 1,500 wasted; 810 houses within the municipality, 573 $\frac{3}{4}$ -inch and 4-inch service taps in use, 576 meters, 59 4-inch and 6-inch hydrants; income \$5,285.31; \$25 annual tax per hydrant to village; all water metered except for public use, rate 25 cents per 100 cubic feet; pumping system; in 1901, 30,655,000 gallons were pumped; 1902, 27,375,000; 1903, 20,085,000; 1904, 21,900,000, and 1905, 22,652,000 gallons; average head of pumps, 70 pounds; pressure in main from 40 to 95 pounds; 9,000 feet 8-inch, 5,708 feet 6-inch, 22,314 feet 4-inch, 1,349 feet 2-inch and 134 feet $\frac{3}{4}$ -inch pipe in use; about 8 dead ends; cleaned every month in summer; cost of repairs, \$25 per mile of pipe per year; pumps operated by steam; cost of entire works to date, \$60,753.27; total bonded debt at date, \$41,300; no separate supply for fire protection.

WALTON (Incorporated Village), Delaware County.

Population: 1890, 2,299; 1900, 2,811; 1905, 2,911.

Supply furnished by Walton Water Company; construction begun in 1879; water from one reservoir is filtered by a pressure filter manufactured by the Greer Filter Company of Philadelphia; white sea sand from Cape May, N. J., is used; the plant is the same as original, only recently installed; no complaints received; about 75 wells are used which belong to individual owners; 2 artesian wells, which furnish 16 families; local board of health controls sanitary condition of watershed; plumbing and distributing system inspected by superintendent of water company and assistant; a creamery near the stream, also a school water-closet pollute supply; supply never failed; about 2,750 persons are supplied from public supply and 750 persons from other sources; 600 houses within municipality; 5 2-inch, 20 $\frac{3}{4}$ -inch and 482 $\frac{3}{4}$ -inch service taps in use, 172 bathtubs, 200 water-closets, 753 washtubs, 925 faucets and 78 hydrants; income per year, \$6,000; gravity system; pressures in main, 70 to 90 pounds; 3,400 feet 10-inch, 8,567 feet 8-inch, 2,261 feet 6-inch, 33,286 feet 4-inch and 671 feet 3-inch pipe in use; 14 dead ends, cleaned weekly by hydrants or valves; total bonded debt, \$50,000, issued 1891 and 1897, at 5 per cent., due 1905, 1912 and 1915; contract between water company and village by which village has water for fire protection in consideration of franchise.

WASHINGTONVILLE (Incorporated Village), Orange County.

Population: 1890, 691; 1900, 667; 1905, 664.

Supply furnished by municipality; construction begun in 1895; original outlay not known, built privately; no purification process employed; no tests made of purity; complaints of quality received in summer; reservoirs not covered; no other sources of supply in addition to public supply; 3 to 4 square miles of drainage area; sanitary condition of shed never ascertained; no expenditure for examining purity; no portion of shed owned by municipality; no inspection of plumbing system maintained; no rain-gauge records kept; no gaugings of stream from which supply is obtained; no other municipality obtains water from the same shed; no pollution; average daily yield not known; supply has never failed; 150 houses within the municipality; $\frac{1}{2}$ -inch service taps in use, 26 bathtubs, 27 water-closets, no meters, 26 4-inch hydrants; income, \$1,200; gravity system; pressure in main, 75 pounds; pipe in use, 4-inch and 6-inch and a short section of 8-inch; hydrants opened every week during summer; cost of repairs per mile of pipe, \$20 per year; cost of entire works to date, \$27,000; total bonded debt, \$27,000; sinking fund to date, \$3,000; municipality does not pay for use of water for fire protection.

SEWAGE DISPOSAL.

No public sewers; no construction contemplated.

WATERLOO (Incorporated Village), Seneca County.

Population: 1890, 4,350; 1900, 4,250; 1905, 4,123.

Supply furnished by Waterloo Water Works Company; construction begun 1886; original outlay, \$47,000; test made by board of health about six years ago; complaints occasionally received in August and September; one uncovered reservoir, for settling; about one day's supply; wells used in addition to public supply; about 2,150 supplied from public supply and 2,150 from other sources; average per capita consumption, 160 gallons; 1,100 houses within municipality, 518 $\frac{1}{2}$ -inch galvanized iron service taps in use, 107 bathtubs, 211 water-closets, 370 washtubs, 19 faucets, 2 meters and 57 4-inch hydrants; income per annum, \$6,000; pumping system; about 120,000,000 gallons pumped per annum; average static head, 130 feet; pressures in main from 40 to 56 pounds; 14-inch, 12-inch, 10-inch, 8-inch, 6-inch, 4-inch, $1\frac{1}{4}$ -inch and 1-inch pipe in use; 9 dead ends cleaned twice a year; cost of repairs per mile of pipe, \$18; pumps operated by steam; cost of entire water-works to date, \$143,447.52; total bonded debt, \$85,000, issued 1896, at 5 per cent., due 1916; municipality pays \$2,280 for fire protection.

SEWAGE DISPOSAL.

No sewer system.

WHITE PLAINS (Incorporated Village), Westchester County.

Population: 1890, 4,042; 1900, 7,899; 1905, 11,579.

Supply furnished by municipality; obtained from caisson wells, one 17 feet diameter 17 feet deep, one 25 feet diameter 25 feet deep and one 30 feet diameter 20 feet deep; construction begun in 1886; no purification process; tests of purity made occasionally; no complaints received of quality; one storage reservoir with capacity of about 90,000,000 gallons; no source of supply other than public supply; 727 acres drainage area; sanitary condition of watershed ascertained by watchmen who live near by; \$200 annual expenditure for controlling purity of water supply; shed owned by municipality; plumber inspects, flat rates, service pipes and makes all taps; one rain-gauge on watershed, record in 1899, 58 inches, 1900, 57.03 inches, 1901, 68.17 inches, 1902, 59.77 inches, 1903, 78.77 inches, 1904, 41.18 inches and 1905, 46.60 inches; no other municipality obtains water from the same shed; no pollution; source of supply failed in 1899, during the construction of the dam; 1,738 connections, including hotels, elevators, schools, etc.; 75 gallons daily consumption per capita; 400,000 gallons used daily for domestic purposes, 8,000 gallons for commercial purposes, 270,000 for public purposes and 2,000 wasted; 1,745 houses within municipality, 1,718 $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch and 20 1-inch and

2-inch service taps in use; 1,548 bathtubs, 1,560 water-closets, 3,456 washtubs, sinks and basins, 14,866 faucets, 1,528 meters, 254 hydrants with 4-inch intake and 2 2½-inch nozzles; water rates: minimum, \$5 per annum for 18,000 gallons, reducing rate for greater consumption from 30 cents to 10 cents per 1,000 gallons; flat rates per annum: one faucet, \$6, bathtub, \$3, each additional bathtub, \$2, basin, \$3, water-closet, \$4, each additional water-closet, \$3, laundry tub, \$2, each additional laundry tub, \$1; pumping system; two duplex pumps with a capacity of 500,000 gallons each, with 10-inch suction line, 12-inch delivery line and with laterals of 8-inch, 6-inch and 4-inch pipe; in 1899, 123,913,119 gallons were pumped, in 1900, 153,486,360, in 1901, 179,934,015, in 1902, 210,696,842, in 1903, 219,432,285, in 1904, 234,209,434 and in 1905, 268,919,413; 81½ pounds to the square inch average static head; 87 pounds per square inch average dynamic head: 70 to 87 pounds pressure in main; 7,875 feet 12-inch, 7,200 feet 10-inch, 4,450 feet 8-inch, 9¾ miles 6-inch, 11.06 miles 4-inch, 1.5 miles 2-inch, 1½-inch, 1¼-inch and ¾-inch pipe in use; 27 dead ends, blown twice a month, except in dry seasons, then once a month; annual cost of repair to pipe, \$6 per mile; pumps operated by steam; duty of pumps, 30,000,000 foot pounds per 100 pounds of coal burned; municipality does not pay for use of water for fire protection; no separate supply for fire protection.

WHITESBORO (Incorporated Village), Oneida County.

Population: 1890, 1,663; 1900, 1,958; 1905, 2,018.

Supply furnished by Whitesboro Water Works Company; obtained from springs; construction begun 1850; in 1876 additions were made; crushed stone and charcoal filter use, bed 10 feet by 15 feet; in 1906 the plant was changed from sand to charcoal; about 1,000 persons supplied; 161 houses within municipality; 161 ¾-inch service taps, 28 bathtubs, 33 water-closets, 189 washtubs and 245 faucets; income per annum, \$1,300; water rates, \$5 per annum for one faucet, each additional, \$5, one hydrant, \$5, barber shops and offices, \$5; gravity system; pressures in main from 15 to 20 pounds; 6-inch to 1-inch pipe in use; dead ends cleaned each month; the Consolidated Water Company of Utica furnishes water supply for fire protection.

SEWAGE DISPOSAL.

No sewers.

WILLIAMSVILLE (Incorporated Village), Erie County.

Population: 1900, 905; 1905, 967.

Supply furnished by municipality; construction begun October, 1895; original outlay, \$24,000; small additions since; no purification process employed; no filters used; no test of purity made since the first in 1896; no complaints of quality; one storage reservoir, capacity 26,500 gallons, one day's supply; two acres of watershed, including land containing standpipe and reservoir, owned by municipality; no regular men employed to inspect plumbing and distributing system; no rain-gauge records kept; no gaugings of the stream from which supply is obtained; no other municipality obtains water from the same shed; no pollution; average daily yield not known; supply has never failed; 313 persons supplied from public supply; 241 houses within the municipality; 92 ¾-inch service taps in use, 6 bathtubs, 26 water-closets, 100 faucets, 1 meter, 40 hydrants fitted with 2½-inch couplings; income for 1905, \$794.14; first meter reading to be taken May 1, 1906; meter rates: 10 cents per 1,000 gallons; dwelling-house, one family not exceeding seven persons, one faucet, \$5; one bathtub, \$2; one water-closet, \$2; each additional faucet, 50 cents; water system, steam pumping and thence gravity from standpipe; 7,678,590 gallons pumped in 1901, 6,225,790 gallons pumped in 1902, 7,522-280 gallons pumped in 1903, 9,766,850 gallons pumped in 1904, 9,032,360 gallons pumped in 1905; pressure in main, 40 pounds; pipe in use: wrought-iron, 3 and 3½-inch and cast-iron, 4-inch, 6-inch, 8-inch, 10-inch and 12-inch; 7 dead ends, which are flushed by opening the hydrants every other month; cost of the entire water-works to date, \$26,000; total bonded debt at date, \$24,000; date of issue, September 1, 1896, running for 30 years, at 4 per cent; no sinking fund at date; municipality pays \$960 per year for use of water for fire protection by paying interest on bonds.

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SEWAGE DISPOSAL.

No public sewers have been constructed; sewage disposed of by cesspools; no construction contemplated.

WINDSOR (Incorporated Village), Broome County.

Population: 1890, 524; 1900, 739; 1905, 691.

Supply furnished by municipality; construction of water-works begun in 1898; original outlay, \$22,000; no additional expenditures made; no purification process employed; municipality owns about one-half of watershed; one man occasionally employed to inspect plumbing and distributing system, compensation \$50 a year; no other municipality takes water from same watershed; no pollution exists; source of supply has never failed; about 500 persons are supplied from public supply; average daily consumption per capita, unknown; 3 meters in use, 38 hydrants, 2½-inch discharge, all with nozzles; income about \$1,400 annually; meter rates: 25 cents per 1,000 gallons; single faucet, \$8 per annum; bathtub, \$2.50; closet, \$2.50; water system, both gravity and pumping; about one-half of supply is pumped for about two months in dry season; pressure in main about 75 pounds per square inch; 1½-inch to 2-inch feedpipes; 4-inch, 6-inch and 8-inch mains in use, six miles in all; two dead ends, cleaned once a month in summer, not at all in winter; pumps operated by gasoline engine; cost of entire water-works to date, \$22,000; total bonded debt at date, \$17,600, there having been issued on April 1, 1899, \$20,000 bonds, at 3½ per cent., \$800 being due each year; no sinking fund; no separate supply for fire protection.

SEWAGE DISPOSAL.

No sewers have been constructed.

WURTSBORO (Incorporated Village), Sullivan County.

Population: 1890, 490; 1900, 450; 1905, 508.

Supply furnished by municipality; construction begun in 1897; original outlay, \$7,000; additional expenditure of \$500 in 1899; no purification process; no complaints received of quality; one reservoir with capacity of 500,000 gallons; watershed not owned by municipality; no other municipality obtains water from same shed; no pollution; supply never failed; 100 houses within the municipality, 28 service taps in use, 8 bathtubs, 11 hydrants, 2½-inch nozzles; income, \$110 per year; gravity system; pressure in main, 90 pounds; 8-inch, 6-inch and 4-inch pipe in use; one dead end; cost of entire water-works to date, \$7,500; bonds for debt issued at 4 per cent. in 1897, payable in instalments of \$500 per year; sinking fund, \$500 at date; no separate supply for fire protection.

SEWAGE DISPOSAL.

No sewers.

YONKERS (City), Westchester County.

Population: 1890, 32,033; 1900, 47,931; 1905, 61,716.

Supply furnished by municipality; obtained from Sprain, Grassy Sprain brooks and Nepperhan river; tube wells on city property; construction was begun in 1874 and 1876; original outlay, \$600,000, \$43,275 in 1883, \$27,217 in 1891, \$259,774 in 1893-1895, \$73,789 in 1898, \$127,621 in 1903-1904 and \$51,185 in 1903; water from river is filtered; slow sand filters; sand used; bank sand obtained near plant; effective size, 0.28-30 mm. uniformity coefficient below 3; complaints are received of the quality; one impounding reservoir, 800,000,000 gallons, two distributing reservoirs, one 60,000,000 and one 4,500,000; daily consumption, 6,000,000 gallons; 13 6-inch and ¾-inch tube wells are used in addition to public supply; monthly chemical analyses of unfiltered and filtered water made; also appearance, color and odor noted; weekly bacteriological examinations made of unfiltered and filtered Nepperhan water; cost of laboratory per 1,000,000 gallons of water, 50 cents; sanitary condition of watershed controlled by State Department of Health; drainage area of Grassy Sprain brook, 3,100 acres; of Nepperhan river, 10,000 acres; all services metered; rain-gauge records are kept; 1895, 37.62 inches, 1896, 40.90

inches, 1897, 41.42 inches, 1898, 55.42 inches, 1899, 41.24 inches, 1900, 53.11 inches, 1901, 58.20 inches, 1902, 67.38 inches, 1903, 90.81 inches, 1904, 55.07 inches; partial failure of source of supply in fall and winter of 1895-1896; average daily yield from brook about 4,000,000 gallons; from river, unknown; entire city supplied from public system; daily consumption per capita, 92 gallons; 5,918 service taps in use, size $\frac{3}{4}$ -inch to 8-inch; 5,891 meters in use, 967 hydrants, size 4 and $4\frac{1}{2}$ -inch; \$149,845.58 annual income by meter; the charges: 15 cents per 100 cubic feet, domestic rate; manufacturing, according to consumption; system is pumping; in 1904, 2,023,809,108 gallons were pumped; pumps operated by steam; cost of pumping about \$0.057 per million gallons raised one foot high; pressure in main, 50 to 130 pounds per square inch; size of pipes, 3 to 30 inches; total bonded debt at date, see annual report 1904; cost of entire works to date, 1904, \$1,994,671.57; sinking fund, October 1, 1904, \$319,415.35.

SEWAGE DISPOSAL.

Public sewers; system combined; area covered $3\frac{1}{2}$ to 4 square miles; area of city, 21 square miles; 600 surface connections; discharge finally into Hudson river; no sewage treated; annual charges for operation and maintenance, \$4,500.

Abstract of Reports from Unincorporated Villages.

ARENA (Unincorporated Village), Delaware County.

Supply furnished by Arena Water Company; obtained from spring; construction begun, 1893; one uncovered reservoir, 20 feet by 40 feet; 120 persons supplied; 24 $\frac{1}{2}$ -inch service taps in use, 24 faucets and 10 4-inch hydrants; income per annum, \$240; gravity system; pressure in main about 80 pounds; three-fourths mile of 6-inch, 4-inch and 3-inch pipe in use; one dead end, cleaned every month; municipality pays \$100 per annum for fire protection.

SEWAGE DISPOSAL.

No sewers; cesspools.

BRIDGEHAMPTON (Unincorporated Village), Suffolk County.

Supply furnished by J. A. Sandford & Son; obtained from well 312 feet deep; construction begun, 1904; original outlay, \$5,500; in 1906 additional expenditure was made; about 470 persons supplied; 110 houses within municipality; 94 $\frac{1}{2}$ -inch service taps in use, 34 bathtubs, 38 water-closets, 17 washtubs, 94 sinks, 40 basins, 164 faucets and 3 $2\frac{1}{2}$ -inch hydrants; income per annum, \$1,020; water rates, \$6 for kitchen and \$6 for bathroom; pumping system; 18,000 gallons pumped per day; average static head, 40 pounds; average dynamic head, 50 pounds; pressures in main, 40 pounds; 800 feet 6-inch, 2,535 feet 5-inch, 8,454 feet 4-inch and 2,240 feet 3-inch pipe in use; pumps operated by gasoline engine; cost of entire water-works to date, \$6,400; total bonded debt, \$6,000; municipality does not pay for fire protection.

CROWN POINT (Unincorporated Village), Essex County.

Supply furnished by Crown Point Water Works Company; obtained from springs; construction begun, 1895; original outlay, \$1,750; in 1898 an addition of two and one-half miles of pipe; one covered storage reservoir, holding 23,000 gallons; source of supply never failed; about 155 persons supplied; 32 $\frac{1}{2}$ -inch service taps in use, 9 bathtubs, 15 washtubs, 50 faucets and 1 to $2\frac{1}{2}$ -inch hose and 15 $\frac{1}{2}$ -inch yard hydrants; gravity system; pressures in main from 35 to 60 pounds; three miles 4-inch, one-fourth mile 3-inch cast-iron and one-fourth mile 1-inch galvanized pipe in use; cost of entire water-works to date, \$5,000; no fire protection.

SEWAGE DISPOSAL.

No public sewers; cesspools.

DEANSBORO (Unincorporated Village), Oneida County.

Supply furnished by Deansboro Water Company; construction begun in 1896; original outlay, \$4,000; no complaints of quality; one reservoir for storage and fire protection; 250 persons supplied; income per annum, \$190; water rates, \$5 per year for household purposes, \$3 for sprinkling and \$4 for closet and bathtubs; gravity system; 2,276 feet 6-inch and 2,475 feet 4-inch pipe in use; one dead end, cleaned whenever necessary; cost of entire water-works to date, \$4,000; municipality pays \$100 per annum for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

DOWNSVILLE (Unincorporated Village), Delaware County.

Supply furnished by Downsville Water Company; obtained from springs; construction begun in 1894; original outlay, \$6,500; in 1897 an additional expenditure of \$240 was made; one reservoir, not covered, with a capacity of from 10,000 to 15,000 gallons; about 25 wells and 10 springs used in addition to public supply; drainage area, one square mile; board of health inspectors control sanitary condition of watershed; about one-half acre of watershed owned by municipality; the supply failed in 1900, for about two weeks in July, and 1904, in July and August; about 200 persons supplied from public supply and 300 from springs and wells; 125 houses within municipality; 32 $\frac{1}{4}$ -inch and 7 $\frac{3}{4}$ -inch service taps, 7 bathtubs, 15 water-closets, 60 washtubs, about 100 faucets and 22 3-inch hydrants; income per year from \$350 to \$600; gravity system; pressures in main from 80 to 90 pounds; one-half mile 6-inch and one mile 4-inch pipe in use; cost of entire water-works to date, \$7,000; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No public sewers; sewage disposed of by cesspools and open vaults.

DOVER PLAINS (Unincorporated Village), Dutchess County.

Supply furnished by Dover Plains Water Company; obtained from mountain stream; construction begun in 1900; original outlay, \$8,000; in 1903 additions were made to the amount of \$500; drainage area comprises 1,000 acres; board of health controls sanitary condition of watershed; corporation owns 45 acres of watershed; supply never failed; 250 persons supplied; 80 houses within municipality, 55 service taps, 15 bathtubs, 15 water-closets, 20 washtubs, 110 faucets and 10 6-inch hydrants; income per year, \$1,000; gravity system; pressures in main from 75 to 80 pounds; 2,178 feet 6-inch, 3,920 feet 4-inch, 200 feet $\frac{1}{4}$ -inch pipe in use; cost of repairs per mile of pipe, \$25 per year; cost of entire water-works to date, \$8,500; total bonded debt at date, \$8,500, at 6 per cent., due 1910; municipality does not pay for fire protection.

DUNDEE (Unincorporated Village), Yates County.

Population: 1890, 1,200; 1900, 1,291; 1905, 1,282.

No public water supply; 526 houses within the municipality.

SEWAGE DISPOSAL.

No sewers have been constructed; sewage carried away in barrels.

EAST CREEK (Unincorporated Village), Herkimer County.

No public or private water supply. No sewers.

EDMESTON (Unincorporated Village), Otsego County.

Supply furnished by Edmeston Water Company; obtained from springs; construction begun in 1896; original outlay, \$14,000; no complaints of quality; reservoirs have capacity of 700,000 gallons, all covered; municipality owns watershed; supply never failed; 500 persons supplied from public supply, balance from wells; 30 bathtubs, 43 water-closets, 2 meters and 20 4-inch inlet hydrants; income per year, \$1,800; meter rates, 20 to 30 cents per 1,000 gallons; \$2. to \$6 per faucet; gravity and pumping systems; in dry seasons pumps are used about one hour per day; average static head, 115 pounds; 5,280 feet 4-inch, 5,280 feet 6-inch, 1,640 feet 8-inch, 300 feet 10-inch, 1 $\frac{1}{2}$ miles of 2-inch pipe in use; pumps operated by gasoline engine; cost of entire water-works to date, \$15,000; total bonded debt, \$20,000, issued 1896, at 5 per cent., due 1916; municipality pays \$400 per annum for fire protection.

SEWAGE DISPOSAL.

No public sewer system.

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FOREST LAWN (Unincorporated Village), Monroe County.

Supply furnished by Forest Lawn Water Company; obtained from three or four springs on the hillside; pumped into high tank; construction begun 1901; original outlay, \$1,000; in 1906 an additional expenditure of \$600 or \$700 was made; chemical test in 1901, water said to be pure; no complaints, except when tank gets dry, which occurs occasionally; reservoir is tank with iron foundations, covered; capacity, 300 barrels; three or four days' supply; drainage area, 20 to 30 acres; source of supply never fails, but engine occasionally; 100 persons supplied, or about two-thirds of 30 summer cottages; 30 houses within the municipality; 20 service taps in use, 5 bathtubs, 5 water-closets, 20 washtubs and 20 faucets; income per annum, \$200; flat rate, \$8 a season, \$2 for bathtub and \$4 for closet; both pumping and gravity system; about one-fourth of a mile of 2-inch mains with terminal of 1-inch; no dead ends; system cleaned out at opening of season each year; pumps have been operated by hot air; gasoline being tried in 1906.

HAMDEN (Unincorporated Village), Delaware County.

Supply furnished by Howard D. Youmans; obtained from springs and brook; construction begun 1884; no filter except gravel between two walls; water tested occasionally by board of health; small dam with spillway, 40 feet by 100 feet by 10 feet deep; occasionally a farm pollutes supply; about 105 persons supplied and one creamery; $\frac{1}{2}$ -inch service taps in use; 5 bathtubs, 2 water-closets, 1 washtub, 5 hydrants; income, after deducting taxes, per annum about \$250; gravity system; pressures in main, 135 pounds; 6-inch main line pipe with $\frac{1}{2}$ -inch connections; value of works, \$3,000; mortgaged for \$1,500, at 5 per cent; municipality does not pay for fire protection.

SEWAGE DISPOSAL.

No sewers.

HENSONVILLE (Unincorporated Village), Greene County.

Supply furnished by Hensonville Water Company; construction begun, 1903; original outlay, \$10,251.41; capacity of reservoir, 350,000 gallons; drainage area, one square mile; 79 persons supplied from public supply and 96 from other sources; 53 houses within municipality; 20 $\frac{1}{2}$ -inch service taps in use, 4 bathtubs, 9 water-closets, 16 sinks, 6 laboratories, 36 faucets, 15 $2\frac{1}{2}$ -inch nozzle fire hydrants and 2 yard hydrants; income per annum, \$351; gravity system; pressure in main, 91 pounds; 5,764 feet 6-inch, 1,950 feet 4-inch, 730 feet 3-inch, 669 feet 2-inch and 72 feet 8-inch pipe in use; 3 dead ends, cleaned whenever necessary; cost of entire works to date, \$10,251.41; note of \$600, due 1907, at 4 per cent.; municipality pays an annual rental of 3 mills per centum upon each dollar of the valuation of the taxable property within the bounds of the fire district; rent for 1905 was \$134.

SEWAGE DISPOSAL.

No public sewers; private cesspools; 4-inch and 5-inch connections.

JEFFERSONVILLE (Unincorporated Village), Sullivan County.

Supply furnished by Jeffersonville water district; supply obtained from spring brook; construction begun 1902; original outlay, \$12,500; in 1905 720 feet of 4-inch pipe extension was added at a cost of \$300; sand filter in use; analysis of water made by State Board of Health in 1906; one supply reservoir with approximate capacity of 5,000,000 gallons and one storage reservoir with a capacity of 300,000 gallons, neither covered; drainage area one square mile; watershed frequently inspected by commissioners; about six acres of watershed owned by municipality; about 325 persons supplied from public supply; 75 houses within municipality; 65 $\frac{1}{2}$ -inch and $\frac{3}{4}$ -inch service taps in use, 40 bathtubs, 45 water-closets, 65 wash-tubs and 16 6-inch and 7 4-inch hydrants; income per annum, \$542; annual water charges: kitchen, \$4, bath, \$2, closet, \$2 and sprinkling, \$2; gravity system;

pressures in main from 50 to 90 pounds per square inch; 4-inch, 6-inch and 8-inch pipe in use; 5 dead ends, cleaned frequently; cost of entire water-works to date, \$12,800; total bonded debt at date, \$12,500, issued 1902, at 4 per cent., due from 1907 to 1922.

Additional supply furnished by Jeffersonville Water Works Company; obtained from a spring; construction begun 1895; original outlay, \$2,000; source of supply never failed; 12 service taps in use, 3 bathtubs, 3 water-closets, 3 washtubs and 25 faucets; income per annum, \$85; gravity system; 1,000 feet 2-inch and 510 feet 1-inch pipe in use; another water company furnishes fire protection.

SEWAGE DISPOSAL.

No public sewers; cesspools.

LILY DALE (Unincorporated Village), Chautauqua County.

Supply furnished by municipality; obtained from Cassadaga lake, one mile long and three-fourths mile wide; reservoir a tank of wood on tower with a capacity of about 250 barrels; superintendent of grounds, foreman of pump and electric light plant and two laborers inspect plumbing; summer population, 2,000 to 3,000, winter population, 200 to 300; pumping system; pumps operated by steam; municipality pays for fire protection.

SEWAGE DISPOSAL.

Public sewers; combined system; nearly all of locality sewerized; sewage disposed of into channel leading out of lake; sewage is first run into underground tanks, allowing water to run off; tanks cleaned spring and autumn; sewers thoroughly flushed every spring.

LONG EDDY (Unincorporated Village), Sullivan County.

Supply furnished by Long Eddy Water Company; obtained from Geers creek; construction begun in 1886; original outlay, \$4,000; in 1886 a new reservoir was built at a cost of about \$600, with extra piping; one open reservoir holds a week's supply; drainage area about 4 miles long; about 175 persons use water from mains, and about 525 use wells and springs; 50 houses within municipality; 25 $\frac{1}{4}$ -inch service taps in use; 20 bathtubs; 20 water-closets; 25 washtubs, and 6 hydrants for 3-inch hose; water rates for six months: \$1 for private families; \$8 for boarding-houses, and \$15 for hotels; gravity system; 1 mile of 4-inch, $\frac{1}{2}$ mile of 6-inch and 300 feet of 8-inch pipe in use; 2 dead ends, cleaned fall and spring; cost of entire water-works to date, \$5,000; municipality pays \$25 per annum for fire protection.

LUZERNE (Unincorporated Village), Warren County.

Supply furnished by E. M. Garnar estate; obtained from spring brook; construction begun in 1892; 1 reservoir; 3 days' supply; not covered; about 35 wells used in addition to public supply; drainage area, 3 square miles; no contamination in the watershed; reservoir is cleaned twice a year; general inspection of plumbing maintained by one man at an annual cost of \$200; no buildings, factories, stables or dwellings in the vicinity of watershed; supply always ample; 500 persons supplied from public supply, and 100 persons use wells; system, gravity; pressures in main from 140 to 100 pounds; $\frac{1}{2}$ mile of 10-inch, 1 mile of 8-inch and $1\frac{1}{2}$ miles of 6-inch pipe in use; 4 dead ends, cleaned once every two weeks by flushing; total bonded debt, \$3,000, at 5 per cent.; no fire protection, except the small pipe used for domestic purposes.

SEWAGE DISPOSAL.

No sewers.

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MARLBOROUGH (Unincorporated Village), Ulster County.

Supply furnished by Marlborough Water-works Company; construction begun in 1893; original outlay, \$30,000; no complaints of quality within 8 years; at that time pipe for inlet was raised to take water from the surface; one reservoir, with a capacity of 4,000,000 gallons; one plumber looks after the mains; water is quite low every summer; income per annum, \$1,700; meter rates are 3 cents for 100 gallons; 1 faucet, \$10 per year; gravity system; pressures in main from 40 to 175 pounds; mains are from 10-inch to 4-inch; municipality pays \$500 for fire protection.

SEWAGE DISPOSAL.

No sewers.

ORWELL (Unincorporated Village), Oswego County.

Supply furnished by A. E. Olmstead; obtained from spring on hill about 3,000 feet from village; construction begun in 1870; original outlay, about \$250; in 1894 an additional expenditure of \$1,000 was made for 3,000 feet 4-inch cast-iron pipe; watershed consists of farm land; no barns or houses nearer than 75 rods, and these are situated below the spring; the elevation of spring is about 60 feet above houses that it supplies; about 100 persons supplied from public supply; 20 $\frac{1}{2}$ -inch service taps in use; 3 water-closets, and 25 faucets; income per annum, \$100; water rates, \$6 for house; gravity system; 4-inch pipe in use.

RICHFORD (Unincorporated Village), Tioga County.

Supply furnished by Richford Water-works; obtained from a spring; construction begun in 1895; original outlay, \$1,200; reservoir, 10 feet by 20 feet by 4 feet; drainage area comprises 50 acres; the watershed is farm land; about 40 persons supplied; 8 houses within municipality; 8 bathtubs; 4 water-closets; gravity system; pressure in main about 50 pounds; $\frac{1}{4}$ mile 2-inch pipe in use; cost of entire water-works to date, \$1,500.

ROSCOE (Unincorporated Village), Sullivan County.

Supply furnished by Roscoe Water Company; obtained from mountain stream; construction begun about 1890; original outlay, \$12,000; capacity of reservoir from 30,000 to 40,000 gallons; 600 persons supplied from public supply; 400 use wells; income per annum, \$1,500; system, gravity; $\frac{1}{4}$ mile 8-inch, $\frac{1}{4}$ mile 6-inch and $\frac{1}{4}$ mile 4-inch pipe in use; cost of entire water-works to date, \$13,000; total bonded debt, \$12,000, issued 1904; municipality pays \$300 per annum for fire protection.

ROUND LAKE (Unincorporated Village), Saratoga County.

Supply furnished by Round Lake Association, a semi-religious corporation; supply is obtained from spring brook; construction begun in 1896; original outlay, \$7,000; in 1901 an additional expenditure of \$200 was made; the water from dam, about 2 miles southwest of Round lake, is led to small pumping station through banks of fine sand; test of purity made several years ago; one distribution reservoir, with a capacity of 70,000 gallons; a few wells in outlying districts used in addition to public supply; drainage area about 150 acres; annual expenditure for controlling purity does not exceed \$10; dam and about 3 acres of land owned by corporation; plumbing inspected by the superintendent of the association, aided by plumbers; average daily yield about fills a 10-inch pipe; about 290 persons supplied in winter and 1,900 in summer; average daily per capita consumption, 20 gallons in summer and 15 gallons in winter; 280 houses within municipality, including hotels; 265 $\frac{1}{4}$ -inch service taps; 88 bathtubs; 230 water-closets; 230 sinks; 500 or 600 faucets, and 16 3-inch hydrants; income per annum, \$1,930; water rates: house, \$5; closet, \$2; bath, \$3; sprinkler, \$3 to \$5; barn, \$5; gravity system in winter, pumping in summer (and in winter for fire protection); average static head of pumps about 60 feet; pressures in main, 17 pounds gravity, and 40 to 50 pounds tank pressure; 6-inch to 2-inch pipe in use; dead ends flushed through hydrants; pumps operated by steam; cost of entire water-works to date, \$10,000.

SEWAGE DISPOSAL.

Public sewers; combined system with some storm sewers; 8-inch final discharge pipe; construction begun in 1888; original expenditure, \$10,000; no material additions since; about two-thirds of locality sewerized; 265 4-inch tile connections, including hotels; 6 surface connections, 4 of 4-inch and 2 of 6-inch; sewage is run into settling basins in sewage house, where all solids are collected, and, after being treated with lime and sawdust, are used for fertilizer; liquids, with storm water, run off into lake; purification plant installed in 1888, when sewers were built; cost of entire sewerage system, \$10,000; sewers are flushed occasionally; annual charges for operating system, \$100 to \$200; employees work on repairs to pipes and keeping sewer house in condition as occasion requires.

SOUTH NEW BERLIN (Unincorporated Village), Chenango County.

Supply furnished by South New Berlin Water Company; construction begun in 1897; original outlay, \$7,895.50; in 1902 an additional expenditure of \$730 was made; gravel and common sand used in filter; no chemicals or aeration; same plant as originally installed; storage and distribution reservoir, 36 feet by 40 feet by 12 feet, covered; 400 persons supplied from public supply and 100 from other sources; 87 houses within municipality; 70 $\frac{1}{4}$ -inch service taps in use; 12 bathtubs; 14 water-closets; 79 faucets; 2 meters, and 10 4-inch hydrants; income per annum, \$971.34; meter rates, 15 cents per 1,000 gallons; other water rates: per faucet, \$6; closets and baths, \$3 each; gravity system; pressures in main do not exceed 66 pounds; 6-inch, 4-inch and 3-inch pipe in use; 3 dead ends, cleaned once a month; cost of entire water-works to date, \$8,618.99; municipality pays \$200 per annum for fire protection.

SEWAGE DISPOSAL.

No sewer system.

THOUSAND ISLAND PARK (Unincorporated Village), Jefferson County.

Supply furnished by the Thousand Island Park Association; obtained from the St. Lawrence river; construction begun in 1883; original outlay not known; water is not furnished for drinking purposes; drinking water is obtained from drilled wells, which, with one exception, belong to cottage owners and are located on private premises; no filters except those used by private individuals in their cottages; chemical and bacteriological tests of river water were made four or five years ago by State Board of Health; report satisfactory; no complaints about quality; one stone reservoir, 150 feet long, 10 feet deep and 40 feet wide, not covered; this reservoir is filled daily and water distributed to the cottages; the two hotels and many boarding-houses obtain their supply from a well drilled into the rock; this on account of the purity of the water; the sanitary condition of park is looked after by our health officer, and from time to time inspected by the health board of the town of Orleans; plumbing and distributing system under inspection of superintendent; no factories or stables on Thousand Island Park; during the summer the population changes from day to day, several hundred persons in June to several thousand in August; about 500 cottages on Thousand Island Park; about 400 water-closets; several hundred faucets; 3 2-inch hydrants, and some 30 more to be put in for fire protection; income per annum about \$1,800 for the season from June 15th to September 15th; after the close of the season and during the winter and spring the water is not pumped or sold; water rate: \$5 per cottage where there is no closet or bathroom, \$6 per cottage where there are one or more closets, \$7 per cottage where there are one or more closets and bathroom, and \$8 for cottage used as laundry; gravity system; supply pipe from pumping station to reservoir, 1,700 feet in length and the water is raised about 100 feet; pressures in main from 35 to 42 pounds; 8-inch to $\frac{1}{4}$ -inch pipe in use; no dead ends.

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SEWAGE DISPOSAL.

Public sewers; combined system; final discharge pipes or trunk sewers, 12-inch, 10-inch, 8-inch and 6-inch in diameter; construction begun in 1883; additional expenditure has been made from year to year, as needed and designed by the corporation with the aid and advice of the local health board; seven-eighths of the park property is sewerized; 400 4-inch house connections, which connect with lateral trunk sewers from 8 to 12 inches in diameter, according to locality and need; a few scattering cottages have their own private sewers; about 400 4-inch surface connections; about one-half sewerized locality paved; final disposal of sewer into the current of the river on the southwest and south sides of the island; the water intake pipe is located higher up on the northwest side; cost of sewerage system, several thousand dollars; sewers are flushed and cleaned frequently, and there is a constant run of waste water through them.

WINDHAM (Unincorporated Village), Greene County.

Supply furnished by Windham Village Water Company; obtained from springs; construction begun in 1905; original outlay, \$8,000 to \$9,000; one storage reservoir, with a capacity of 128,000 gallons, equal to 17 days' supply, covered; drainage area about 1 square mile; sanitary condition of watershed inspected by superintendent; municipality, owns springs with privilege of use of surrounding premises; from 500 to 700 persons supplied from public supply, and from 50 to 70 from other sources; 89 houses within municipality; 60 $\frac{1}{4}$ -inch service taps in use; 12 bathtubs; 13 water-closets; 14 washtubs; 121 faucets; 13 5-inch to 2 $\frac{1}{4}$ -inch hydrants; income per annum about \$1,000; gravity system; $\frac{1}{2}$ mile 4-inch, $\frac{1}{4}$ mile 3-inch and $\frac{1}{4}$ mile 6-inch pipe in use; 2 dead ends, kept open most of the time for circulation of water; cost of entire water-works to date, \$8,000 to \$10,000; sinking fund at date, \$100; municipality pays \$200 annually for fire protection.

SEWAGE DISPOSAL.

No public sewers; cesspools.

APPENDIX VI.

Rules and Regulations of the State Water Supply Commission.

RELATING TO WATER SUPPLY.

RULE I.

Before any municipal corporation or other civil division of the State of New York, or any board, commission or other body of or for any such municipal corporation or other civil division of the State, or any person or water works corporation engaged in supplying or proposing to supply the inhabitants of any municipal corporation with water shall have power to acquire, take or condemn lands for new or additional sources of water supply, such person, corporation or civil division shall make application to the State Water Supply Commission for approval of its maps and profiles of such new or additional source or sources of water supply.

RULE II.

Such application shall be made by petition in writing to said State Water Supply Commission at its office, No. 23 South Pearl street in the city of Albany, N. Y.

RULE III.

Such application shall be accompanied by, (1) an exhibit of maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, (2) plans and surveys and an abstract of official reports relating to the proposed plan showing the need of such municipal corporation for a particular source or sources of supply and the reasons therefor, (3) a plan or scheme to determine and

provide for the payment of proper compensation for any and all damages to persons or property whether direct or indirect which will result from the acquiring said lands and the execution of said plans. (4) The names of all municipal corporations and other civil divisions of the State affected by the proposed project and the names of the chief executive officers thereof; namely, in cities, the mayor; in villages, the president of the board of trustees or directors; and in other civil divisions, the supervisors of the towns. (5) A plan or scheme showing that such plans are just and equitable to said municipal corporations and other civil divisions and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply. (6) A sheet of the United States geological survey showing the location of the territory to be served, the territory to be acquired and the water shed. (7) Proof of the character and purity of the water supply proposed to be acquired by certificates of experts who have made chemical and bacteriological analyses, (8) and where petition is made by a person or water works corporation, by an undertaking in such sum and with such sureties as shall be approved by the president of this Commission conditioned that the expenses of the hearing and determination will be paid by the petitioner.

RULE IV.

Upon the receipt and filing of such application, maps, profiles and papers, the Commission shall thereupon give public notice that on a certain day the Commission will meet at its office in the city of Albany or at such other place as it may particularly specify in said notice for the purpose of hearing all persons, municipal corporations or other civil divisions of the State that may be affected thereby.

RULE V.

Such notice shall be published in such newspapers and for such length of time not exceeding four weeks as the Commission shall by resolution determine.

Proof of the publication of said notice shall be filed in the office of the State Water Supply Commission prior to the day specified in said notice for the day of hearing.

RULE VI.

At any time prior to the day specified in such notice any person or municipal corporation or the proper authorities of any civil

division of the State may file in the office of the Commission at Albany objections to the project proposed by such application.

RULE VII.

Every objection so filed must be in writing and shall particularly specify the ground thereof.

RULE VIII.

No person, municipal corporation or local authorities shall be heard in opposition to the project proposed by such application, except on objections filed as provided by Rules 6 and 7.

RULE IX.

Amendments to the application and to the objections may be permitted by the Commission.

RULE X.

The Commission shall upon the day specified in said notice or upon such subsequent day or days to which the Commission may adjourn the hearing proceed to examine the said map and profiles, plans and papers filed and to hear the proofs and the arguments both oral and written submitted in support and in opposition to the proposed project.

RULE XI.

The Commission require that particular attention shall be given by the proofs and arguments to the following questions:

(1) Are the plans proposed by the application justified by public necessity?

(2) Are such plans just and equitable to the other municipal corporations and civil divisions of the State affected thereby and to the inhabitants thereof; particular consideration being given to their present and future necessities for sources of water supply?

(3) Do said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property both direct or indirect which will result from the execution of said plans?

RULE XII.

The Commission shall within ninety days after the final hearing and with all convenient speed approve such application either as presented or with such modifications in the plans submitted as

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may be deemed necessary to protect the water supply and the interests of any other municipal corporation, civil division of the State or the inhabitants thereof, or to bring into co-operation all municipal corporations or other civil divisions of the State which may be affected thereby, or it may reject the application entirely or permit another to be filed in lieu thereof.

RULE XIII.

The decision of the Commission on any application submitted to it, shall be stated in writing, shall be signed by it and have affixed thereto its official seal and the same shall be filed together with all plans, maps, surveys and other papers or records relating thereto in its office.

RULE XIV.

The expense of such hearing and determination by the Commission will be certified by the Commission under its official seal to the person, water works corporation, municipal corporation or other civil division of the State making application for approval of plans, etc., and the same shall be paid by the said applicant within thirty days thereafter upon the certificate of the Commission, to the persons entitled thereto.

RULE XV.

Any three of the Commissioners shall constitute a quorum for the transaction of business.

RULE XVI.

All maps, plans, records, surveys and other papers filed in the office of the Commission by any applicant or objector may be examined by any person or persons at the office of the Commission, but shall not be removed therefrom except upon the written authority of the Commission.

RULE XVII.

All maps shall be on paper or cloth 27" x 40" (double elephant) or folded to those dimensions and all other written matter shall be upon legal cap of legal weight and size.

APPENDIX VII.

Law Establishing a State Water Commission.

CHAP. 723, LAWS OF 1905.

AN ACT to establish a state water commission, to define its powers and duties, and making an appropriation therefor.

Became a law, June 3, 1905, with the approval of the Governor. Passed, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The governor, by and with the advice and consent of the senate, shall within fifteen days after this act takes effect, appoint five citizens of the state, one of whom shall be designated as president to constitute a commission to be known as the state water supply commission. Any three of said commissioners shall constitute a quorum for the transaction of business. The commission shall make necessary rules and regulations for the proceedings hereunder.

§ 2. No municipal corporation or other civil division of the state, and no board, commission or other body of or for any such municipal corporation or other civil division of the state shall, after this act takes effect, have any power to acquire, take or condemn lands for any new or additional sources of water supply, until it has first submitted the maps and profiles therefor to said commission, as hereinafter provided, and until said commission shall have approved the same.

§ 3. Any municipal corporation or other civil division of the state may make application by petition in writing to the said commission for the approval of its maps and profiles of such new or additional source or sources of water supply for such municipal corporation or other civil division of the state. Such application shall be accompanied by an exhibit of maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aque-

duct lines and the flow lines of the water when impounded, plans and surveys and abstract of official reports relating to the same, showing the need of such municipal corporation for a particular source or sources of supply and the reasons therefor, and shall be accompanied by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans. Said commission shall thereupon cause public notice to be given that on a day therein named the commission will meet at its office in the city of Albany, or at such other place as it may particularly specify in said notice, for the purpose of hearing all persons, municipal corporations or other civil divisions of the state that may be affected thereby. Such notice shall be published in such newspapers and for such length of time, not exceeding four weeks, as the commission shall determine. At any time prior to the day specified in such notice any person or municipal corporation or the proper authorities of any civil division of the state may file in the office of the commission at Albany objections to the project proposed by such application. Every objection so filed shall particularly specify the ground thereof. Said commission shall, upon the day specified in said notice, or upon such subsequent day or days to which it may adjourn the hearing, proceed to examine the said maps and profiles and to hear the proofs and arguments submitted in support and in opposition to the proposed project, but no person, municipal corporation or local authorities shall be heard in opposition thereto except on objections filed as authorized by this section. The commission shall determine whether the plans proposed by such municipal corporation or other civil division of the state are justified by public necessity, and whether such plans are just and equitable to the other municipalities and civil divisions of the state affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect which will result from the execution of said plans. Said commission shall within ninety days after the final hearing and with all convenient speed, either approve such application as presented or with such modifications in the plans

submitted as it may deem necessary to protect the water supply and the interests of any other municipal corporation, or other civil division of the state, or the inhabitants thereof, or to bring into cooperation all municipal corporations, or other civil divisions of the state, which may be affected thereby. Or it may reject the application entirely or permit another to be filed in lieu thereof, but it shall, however, make a reasonable effort to meet the needs of the applicant, with due regard to the actual or prospective needs and interests of all other municipal corporations and civil divisions of the state affected thereby and the inhabitants thereof. Whenever the commission shall make a decision on any application submitted to it by any municipal corporation or other civil division of the state it shall state the same in writing and sign the same and cause its official seal to be affixed thereto and file the same, together with all plans, maps, surveys and other papers or records relating thereto in its office. The decision of the commission and its action on any application may be reviewed by certiorari proceedings. The expense of any such hearing and determination by the commission shall be certified by said commission to the municipal corporation or other civil division of the state making such application and shall be paid by said municipal corporation or other civil division of the state to the state treasurer within thirty days thereafter.

§ 4. Said commission shall have power to subpoena and require the attendance in this state of witnesses and the production by them of books and papers pertinent to the investigation and inquiries authorized and to examine them and such public records as it shall require in relation thereto. And for the purposes of the examinations authorized by this act, the commission shall possess all the powers conferred by the legislative law upon a committee of the legislature or by the code of civil procedure upon a board or committee, and may invoke the power of any court of record in the state to compel the attendance and testifying of witnesses and the production by them of books and papers as aforesaid.

§ 5. The commission shall have an official seal. The term of each member of the commission shall be five years, except that the members of said commission first appointed shall hold office respectively one for one year, one for two years, one for three years, one for four years and one for five years, and as the term of each commissioner expires or otherwise becomes vacant his suc-

cessor shall be appointed in the manner hereinbefore provided for the appointment of the original commissioners. The members of the commission shall not receive a salary, but shall be paid their necessary and reasonable expenses actually incurred in the prosecution of their duties, and may also receive a just and reasonable compensation, subject to the approval of the governor, for the time actually employed by them in the work of the commission. The commission is hereby authorized and empowered to employ a secretary and such engineers, stenographers, clerks and other subordinates as the duties imposed upon them by this act may require, and to fix and pay the reasonable salaries and expenses of such officers, and of all other subordinates for the purpose of proceedings by them under this act, subject to the approval of the governor.

§ 6. In addition to the powers and duties heretofore conferred upon it, said commission shall immediately after its appointment proceed to make an investigation and report to the legislature as part of its first annual report hereinafter provided for, concerning the available sources of water supply in this state, the respective purity and quantity of each source of supply and the availability of each to be used for localities other than those immediately adjacent thereto. Said commission shall also investigate and report at said time the present water supply of each municipal corporation and other civil divisions of the state to ascertain the present and future needs of each of said municipal corporations and other civil divisions of the state, and the supply therefor, and the purity of each of said supplies. Said commission shall also report the present dispositions of sewerage of each municipal corporation and other civil division of the state, and, if necessary, of adjoining states, with special reference to said disposition affecting the various municipal corporations and other civil divisions of the state in relation to the water supply of this state. Said commission shall also report the advisability of, the time required for and the expenses incident to, the construction of a state system of water supply and for a state system for the disposition of sewerage, if necessary, for all or any of the municipal corporations and other civil divisions of this state, and make such recommendations connected with the subjects of said investigations herein provided for as said commission shall determine. In said investigation concerning either the water supply or disposition of sewerage, said commission shall, so far as

possible, make use of all reports and surveys in regard thereto which have heretofore been made. For the purposes of such investigations as are provided for in this section said commission shall have all the powers and authority conferred by section four hereof.

§ 7. The commission shall annually, on or before the first day of February in each year, submit a written report of its proceedings during the preceding year to the legislature.

§ 8. Nothing herein contained shall in any way affect the acquiring of lands by the aqueduct commissioners of the city of New York under the provisions of chapter four hundred and ninety of the laws of eighteen hundred and eighty-three as heretofore amended.

§ 9. The sum of forty thousand dollars or so much thereof as may be necessary is hereby appropriated out of any moneys in the treasury, not otherwise appropriated, to be paid by the state treasurer upon the warrant of the comptroller for the purposes of this act.

§ 10. All other acts and parts of acts inconsistent with this act are hereby repealed.

§ 11. This act shall take effect immediately.

Law Increasing the Powers of the State Water Supply Commission.

CHAP. 415, LAWS OF 1906.

AN ACT to amend chapter seven hundred and twenty-three of the laws of nineteen hundred and five, entitled "An act to establish a state water commission and to define its powers and duties, and making an appropriation therefor," generally.

Became a law, May 11, 1906, with the approval of the Governor. Passed, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Sections two, three, four and five of chapter seven hundred and twenty-three of the laws of nineteen hundred and five, entitled "An act to establish a state water commission and to define its powers and duties, and making an appropriation therefor," are hereby amended to read, respectively, as follows:

§ 2. No municipal corporation or other civil division of the state, and no board, commission or other body of or for any such

municipal corporation or other civil division of the state shall, nor shall any person or water-works corporation engaged in supplying or proposing to supply the inhabitants of any municipal corporation with water, after this act takes effect, have any power to acquire, take, or condemn lands for any new or additional sources of water supply, until such person, corporation or civil division, has first submitted the maps and profiles therefor to said commission, as hereinafter provided, and until said commission shall have approved the same.

§ 3. Any municipal corporation or other civil division of the state, or any person or water-works corporation, may make application by petition in writing to the said commission for the approval of its maps and profiles of such new or additional source or sources of water supply. Such application shall be accompanied by an exhibit of maps of the lands to be acquired and profiles thereof showing the sites and areas of the proposed reservoirs and other works, the profiles of the aqueduct lines and the flow lines of the water when impounded, plans and surveys and abstract of official reports relating to the same, showing the need for a particular source or sources of supply and the reasons therefor, and shall be accompanied by a plan or scheme to determine and provide for the payment of the proper compensation for any and all damages to persons or property, whether direct or indirect, which will result from the acquiring of said lands and the execution of said plans. Such petition shall also be accompanied by such proof as to the character and purity of the water supply proposed to be acquired as the state water supply commission shall require. If such petition is made by a person or water-works corporation, it shall be accompanied by an undertaking in such amount and with such sureties as the state water supply commission shall determine, that such person or water-works corporation will pay the expenses of the hearing and determination as hereinafter provided. Said commission shall thereupon cause public notice to be given that on a day therein named the commission will meet at its office in the city of Albany, or at such other place as it may particularly specify in said notice, for the purpose of hearing all persons, municipal corporations or other civil divisions of the state that may be affected thereby. Such notice shall be published in such newspapers and for such length of time, not exceeding four weeks, as the commission shall determine. At any time prior to the day specified in such notice

any person or municipal corporation or the proper authorities of any civil division of the state may file in the office of the commission at Albany objections to the project proposed by such application. Every objection so filed shall particularly specify the ground thereof. Said commission shall, upon the day specified in said notice, or upon such subsequent day or days to which it may adjourn the hearing, proceed to examine the said maps and profiles and to hear the proofs and arguments submitted in support and in opposition to the proposed project, but no person, municipal corporation or local authorities shall be heard in opposition thereto except on objections filed as authorized by this section. The commission shall determine whether the plans proposed are justified by public necessity, and whether such plans are just and equitable to the other municipalities and civil divisions of the state affected thereby and to the inhabitants thereof, particular consideration being given to their present and future necessities for sources of water supply, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect which will result from the execution of said plans. Said commission shall within ninety days after the final hearing and with all convenient speed, either approve such application as presented or with such modifications in the plans submitted as it may deem necessary to protect the water supply and the interest of any other municipal corporation, or other civil division of the state, or the inhabitants thereof, or to bring into co-operation all municipal corporations, or other civil divisions of the state, which may be affected thereby. Or it may reject the application entirely or permit another to be filed in lieu thereof, but it shall, however, make a reasonable effort to meet the needs of the applicant, with due regard to the actual or prospective needs and interests of all other municipal corporations and civil divisions of the state affected thereby and the inhabitants thereof. Whenever the commission shall make a decision on any application submitted to it it shall state the same in writing and sign the same and cause its official seal to be affixed thereto and file the same, together with all plans, map, surveys and other papers or records relating thereto in its office. The decision of the commission and its action on any application may be reviewed by certiorari proceedings. The expense of any such hearing and determination by the commission shall be certified by said commission to the person, water-works corpora-

tion, municipal corporation or other civil division of the state making such application and, shall be paid by said applicant within thirty days thereafter upon the certificate of the commission to the persons entitled thereto.

§ 4. Said commission shall have power to subpoena and require the attendance in this state of witnesses and the production by them of books and papers pertinent to the investigation and inquiries which it is authorized to make by this act, and to examine them and such public records as it shall require in relation thereto. And for the purposes of the examinations authorized by this act, the commission shall possess all the powers conferred by the legislative law upon a committee of the legislature or by the code of civil procedure upon a board or committee, and may invoke the power of any court of record in the state to compel the attendance and testifying of witnesses and the production by them of books and papers as aforesaid.

§ 5. The commission shall have an official seal. The term of each member of the commission shall be five years, except that the members of said commission first appointed shall hold office respectively one for one year, one for two years, one for three years, one for four years and one for five years, and as the term of each commissioner expires or otherwise becomes vacant his successor shall be appointed in the manner hereinbefore provided for the appointment of the original commissioners. The members of the commission shall receive an annual salary of five thousand dollars each and be paid their necessary and reasonable expenses actually incurred in the prosecution of their duties, payable monthly. The commission is hereby authorized and empowered to employ a secretary and such engineers, stenographers, clerks and other subordinates as the duties imposed upon them by this act may require, and to fix and pay the reasonable salaries and expenses of such officers, and of all other subordinates for the purpose of proceedings by them under this act, subject to the approval of the governor.

§ 2. This act shall take effect immediately.

Law Establishing a River Improvement Commission.**CHAP. 734, LAWS OF 1904.**

AN ACT to establish a permanent commission for the regulation of the flow of water courses in this state in aid of the public health and safety, to be known as the river improvement commission.

Became a law, May 14, 1904, with the approval of the Governor. Passed, a majority being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

River Improvement Commission.

Section 1. After the passage of this act the state engineer and surveyor, the attorney-general, the superintendent of public works, the forest, fish and game commissioner, and one commissioner who shall be a civil engineer, to be appointed by the Governor by and with the advice and consent of the senate, shall constitute a commission to be known as the river improvement commission.

Petition to regulate flow of water; petition, by whom made.

§ 2. Any county, city, town or village located upon any river or water course, or any person or persons possessing riparian rights thereon, may present to the commission, a petition duly verified, setting forth the facts showing that the restricted or unrestricted flow thereof is a menace to the public health and safety and that it is necessary to the preservation of the public health and safety to regulate the same, and praying that the flow of water in such river or water course shall be regulated under the provisions of this act, so far as necessary for that purpose. Such petition may be made on behalf of any county by the board of supervisors thereof, on behalf of any town by the supervisor thereof, on behalf of any city by the mayor or board of aldermen thereof, on behalf of any village by the president or board of trustees thereof.

Commission to determine when to act.

§ 3. Such commission on receipt of any such petition shall forthwith determine whether the regulation of the flow of any such river or water course is of sufficient importance to the public health or safety to warrant the interference of the state under the provisions of this act, and shall certify its determination thereupon. If it shall determine that the relief prayed for should be granted,

such commission shall at once make or cause to be made such preliminary surveys and investigations as may be proper to determine the causes of the excessive, restricted or irregular flow in such river or water course, the available means to correct the same for the preservation of the public health and safety, and if relief therefrom is in the opinion of the commission practicable, to take such other and further action with reference to relieving the same as is hereinafter provided for.

Plans and specifications for improvements; map to be made; hearings, when maps and plans to be modified; legislature to approve.

§ 4. If such commission shall determine that a more beneficial flow of water in such river or water course can be had by construction of dykes, clearing out or changing the channel, the erection of a dam or dams or other public works thereon, or upon any tributary thereof, it shall cause to be made preliminary plans and specifications of such proposed improvements, together with a survey of the lands upon which such improvements are to be located, giving the location thereof, and of all lands to be taken, flowed or damaged thereby, with a description by survey or otherwise, of all rights affected thereby, and estimates of the total cost thereof. The commission shall also cause a map to be made showing all such lands, the number of acres in each separate tract and the names of the owners and occupants thereof so far as the said commission can ascertain the same. The commission or the members thereof may enter upon such lands as the commission shall deem necessary for the purpose of doing such work, either by themselves or by their engineers, agents or servants employed by them for that purpose. The commission shall also prepare a statement or list of the counties, towns, cities, villages and individual properties which in its judgment will be benefited thereby, together with a statement of the proportional share of said total cost which should be borne by the said counties, towns, cities and villages respectively, and by the individual owners of property benefited collectively, expressed in decimals; and in case any part or proportion of the cost of such improvement is not properly assessable upon the counties, towns, cities, villages or individual properties, or any of them, as not in the nature of a local improvement, such part or proportion of the expense shall be deducted from the total cost before apportioning the same upon the counties, towns, cities, villages and individual properties as aforesaid, and

shall be certified by the said commission to the legislature as a state charge. Said preliminary maps, plans, specifications, estimates and statements shall thereupon be filed in the office of the county clerk of any county benefited and of each county in which any of the aforesaid towns, cities, villages or individual properties benefited are situated. Upon the completion and filing of such preliminary maps, plans, specifications, estimates and statements, the commission shall give notice of the filing thereof, and of the time and place where said commission will give a hearing to persons interested therein, by advertising for five weeks in two newspapers published in each county where such improvement is proposed to be made, and in the state paper published at Albany, at which time and place any person interested may appear, and make any objection to or suggest any modifications in said plans and specifications, and said commission shall have power to adjourn said hearing from time to time as justice may require. Thereupon said commission shall determine whether such proposed improvement shall be abandoned or proceeded with, and what, if any, modifications should be made in said plans, specifications, estimates and statements. If said commission shall determine that said maps and plans should be modified so as to include territory to be benefited or otherwise, not included in the maps, plans and statements already filed, then they shall cause modified maps, plans, specifications, estimates and statements to be prepared and filed as hereinbefore provided, for said preliminary maps, plan, specifications, estimates and statements, and shall give notice of their completion and filing and of a hearing thereupon, in the manner hereinbefore prescribed for a hearing upon said preliminary maps, plans, specifications, estimates and statements. If said commission shall finally determine that the proposed improvement be made, it shall thereupon make a final order directing the same to be made, and shall cause to be prepared a final map, detailed plans, specifications and estimates of the total cost thereof. The commission shall cause the said final order, map, plans, specifications and estimates, or duplicates thereof, certified by them, to be filed in the office of the county clerk of each county in which lands affected or benefited thereby are located. No such improvement shall be undertaken under this act pursuant to any such final order, or any other proceedings had thereon except as hereinbefore provided, until after the said final order shall have been approved by a subsequent act of

the legislature which act shall authorize and specifically designate the improvement singly directed by such final order to be made. If so approved, the said final order shall become effectual and not otherwise.

Bids and proposals to be advertised; bond required; payments, how made.

§ 5. When any such final order shall have been made and approved by an act of the legislature as hereinbefore provided, such commission shall advertise two successive weeks in the state paper and in two newspapers published in the county wherein such work is to be performed, and if in more than one county, then in each of such counties, and in such other newspaper as shall be deemed of advantage, for bids or proposals for said work to be made in writing for the construction of such dam or dams, dykes or other works according to such plans and specifications. Upon the receipt of the proposals, such commission may enter into a contract or contracts with the lowest responsible bidders for the work to be done, or may reject any or all bids and again advertise for further bids. Before entering into any such contract, a bond with sufficient sureties shall be required, conditioned that the contractor will perform all work within the time prescribed in accordance with the plans and specifications, and will indemnify the state and said commission of and from all liability for damages occasioned or suffered by reason of the negligence or willful fault of such contractor, his employees or any subcontractor or his employees in doing such work. Partial payments for work actually done may be provided for in the contracts and paid in the manner hereinafter provided to an amount not to exceed ninety per centum of the contract price. The payments due on account of any such contracts or for any necessary expense or work in connection therewith in pursuance of this act shall be paid from the river improvement fund as hereinafter provided for.

Powers to enter upon land.

§ 6. The commission may enter upon any land, structures and waters which in its judgment shall be necessary to enter upon for the purposes of this act. If the owner of any property to be taken shall agree with said commission upon the sum to be paid therefor, or for any damages sustained, such sum shall be paid as hereinafter provided as part of the necessary expense incurred in carrying out any improvement under the provisions of this act.

May acquire title by condemnation.

§ 7. If the commission cannot agree with the owners upon the compensation and damages to be paid for the property to be so taken and appropriated the commission shall thereupon serve upon such persons a notice that the lands and property described therein have been appropriated by the state for the purposes of this act, and shall proceed to acquire title thereto under the provisions of title one of chapter twenty-three of the code of civil procedure, known as the condemnation law.

Final copy of order, etc., to be filed in Comptroller's office; Comptroller to issue warrant for payment.

§ 8. When proceedings are taken under the condemnation law the commission shall file in the comptroller's office a certified copy of the final order provided for in section thirty-three hundred and seventy-one of the code of civil procedure, and a certified copy of the judgment therein rendered pursuant to section thirty-three hundred and seventy-three of said code, together with a certificate of the attorney-general that no appeal from such final order and judgment has been or will be taken by the state, or if an appeal has been taken, a certified copy of the final judgment of the appellate court affirming in whole or in part said final judgment. The comptroller shall issue to the said commission or such officer thereof, as it shall direct, his warrant for the payment of the amount due upon such final order and judgment with interest from the date of the judgment until the thirtieth day after the entry of such final order and judgment, and the same shall be paid out of the river improvement fund hereinafter provided for. Such warrant shall be payable to and shall be delivered by the commission or its officers to the owner or owners of said judgment according to the terms thereof.

Cost to be apportioned; proportions, how assessed and paid; copy of apportionment, when served; notice of hearing; apportionment may be modified or amended; cost, how apportioned among individual owners.

§ 9. As soon as the total cost of such improvements, including compensation for lands, property, property rights, and all damages whatsoever suffered by reason thereof, and all expenses of the commission necessarily incurred or to be incurred in connection therewith, less the amount thereof chargeable to the state, can be determined, said commission shall make a complete and detailed verified statement thereof. They shall apportion the

same between the respective counties, towns, cities, villages and individual properties which according to their determination made as hereinbefore provided, are benefited by said improvements. Said apportionment shall be in writing, and shall specify the proportion thereof to be paid by each of said counties, towns, cities and villages as a whole for public benefits which each as a whole will receive therefrom, and it shall specify the benefits of individual properties, whether in such counties, cities, towns and villages aforesaid or not. The commission shall express such proportions in decimals according to the benefits received therefrom, and shall determine whether the same shall be paid in one assessment or in annual assessments not exceeding twenty in all. If the commission determine that the sum so apportioned shall be paid in annual installments, it shall add to each apportionment an amount sufficient to pay all necessary interest money, specifying the amount of each installment. Upon completion of such apportionment, the commission shall cause a true copy thereof to be served upon the chairman of the board of supervisors of each county, the mayor of each city, the supervisor of a town, the president of a village named in said apportionment, or if service cannot be had upon such mayor, supervisor, or president, then upon the board of aldermen of the city, the town board of the town, or the board of trustees of the village, by delivering the same openly to one of them while in session. A copy thereof shall also be served upon each individual owner of property assessed, either by delivery to such owner or by posting the same upon the said property, and by duly publishing a copy thereof for three weeks in two newspapers published in the county where such property is situated. With such apportionment and as a part thereof, shall be served a notice specifying a time and place where such commission shall meet to hear any county, town, city, village or person interested or aggrieved thereby. Said apportionment and notice shall be served at least fifteen days before such meeting if the service is personal, and at least three weeks before said meeting, if the same is by publication. The affidavit of the person serving or publishing such notice shall be evidence thereof. The commission shall meet at the time and place specified and hear all persons interested in or aggrieved by said apportionment. After such hearing the commission may modify or amend such apportionment in which case it shall serve a true copy thereof and notice of a hearing thereon in the same manner upon the same

conditions and with the same force and effect as the first apportionment and notices. Any county, city, town or village, or any person deeming itself aggrieved may review the determination of the commission in the same manner as a review is had of the determination of a board of assessors in making an assessment. Whenever it shall be determined by the commission that any portion of the total cost of such improvement shall be borne by the individual properties benefited, it shall proceed to apportion that part among such individual properties in the following manner: A committee of three of its members shall be appointed who shall have power to apportion and assess such cost upon the individual properties benefited in proportion to the benefit received. Said committee shall prepare or cause to be prepared a list showing each parcel benefited together with the name of the owner thereof so far as the name can be ascertained. The said committee shall view the premises and determine the proportion of benefit received by each parcel. They shall thereupon cause to be prepared a statement of their determination showing the parcels benefited with the proportion of benefit received expressed in decimals. They shall cause a copy of such statement to be served upon the owner or owners of each parcel assessed together with notice of a time and place not less than two weeks at which a hearing will be given thereon, at which any person deeming himself aggrieved shall be heard. Such notice shall be served personally, and in case personal service cannot be made, by publication thereof for two weeks in two newspapers published in the county where said property is situated. Upon said hearing the committee may confirm, modify or alter their determination, and shall thereupon make a final decision assessing that portion of the cost of such improvement to be borne by the individual properties benefited, upon the said properties in proportion to the benefit received expressed in decimals, and determining whether the same shall be paid in one sum or in annual installments not exceeding twenty in all, and shall cause a copy thereof to be served upon the owner or owners of each parcel assessed. The determination of such committee may be reviewed in the same manner as a review is had of a determination of the board of assessors in making an assessment. The said committee shall report such final determination and assessment, with their proceedings thereon to the commission and upon the adoption and confirmation thereof by said commission the same shall be and become operative as an

apportionment and assessment of the costs and expenses to be borne by the individual properties benefited by such improvement.

Final statement of cost; final statement, where filed; assessment, how made; assessments to be liens; moneys collected to be paid to county treasurer.

§ 10. The commission shall then make a final statement of the total cost and expense of such improvement, and of the apportionment and assessment thereof and file the same as hereinafter provided. Said statement shall contain a statement of the total amount of said costs and expenses, and a statement of the respective counties, cities, towns and villages benefited thereby with the proportion of benefit received by each county, city, town or village expressed in decimals. It shall also contain a statement of the amount of such costs and expenses which is to be paid by the individual properties benefited, with a description of each parcel, the name of the owner or owners, so far as known, the city, town or village where situated and the proportion of benefit received expressed in decimals. It shall also contain a statement whether the amount so assessed upon any county, city, town, village or individual is to be paid in one sum or in annual installments as hereinbefore provided and the amount of each annual installment in case the same is to be so paid. A copy of such statement duly verified under the seal of the commission shall be filed with the clerk of each county, town, city or village containing any lands herein stated to be benefited. The clerk of such county, city, town or village, shall make and deliver to the board of supervisors of such county, the common council of such city, the board of trustees of such village, and the assessors of such town, city or village, a copy of such statement. The board of supervisors of each such county shall levy and assess upon the county and upon each town specified in such statement the amount of such benefit which in such statement is certified to be the proportion which should be borne by the county or by such town as a whole. The common council of each city and the board of trustees of each village shall in like manner levy and assess upon such cities and villages respectively the amount stated in such statement which should be paid by each of such cities and villages respectively. The assessors of each town, city or village containing individual properties upon which a portion of such cost is assessed shall enter on a separate page in their assessment roll a statement of the total amount to be so paid by such individual properties, a description of each

parcel and the proportion of benefit received expressed in decimals, as contained in the statement filed with them. And the board of supervisors of each county where such property is situated shall levy and assess against each such parcel so much of the amount to be raised as shall correspond with the amount of benefit received as indicated by the decimal set down after the description thereof as hereinbefore provided and shall by their warrant direct the collection thereof in the same manner and by the same procedure as general taxes are collected, except that no personal property of the owner of the parcel shall be seized or sold to pay the tax, and that the particular tax assessed on account of such improvement, shall be satisfied only by a sale and conveyance of the parcel benefited. And in case it is determined that the amount required is to be paid in annual installments, the board of supervisors or the assessors of the city, town or village, as the case may be, shall annually assess the annual installment to be paid by such county, city, town, village or individual, in the manner provided by this section, until the whole shall be paid. Upon the assessment by the commission of the benefits as provided in this section, the amounts proportioned shall be and remain charges against the several municipalities and liens upon the several parcels of property charged therewith, until paid or otherwise removed, superior in force and effect to all other liens except unpaid general taxes. All moneys collected under and by virtue of the provisions of this act shall be paid to the county treasurer of the county benefited or of the county in which the town, city, village or property is located, who shall pay the same on or before the first day of June in each year to the comptroller of the state, who shall deposit the same in a depository bank to the credit of the river improvement fund as herein provided for. Provided, however, that any county, city, village or individual who may elected to pay the whole of their apportionment, or the portion thereof at any time remaining unpaid, instead of in installments as hereinbefore provided, may pay the same to the county treasurer, and be discharged therefrom.

Commission may issue bonds; bonds, when payable; bonds, how issued; exempt from taxation, how sold; river improvement fund.

§ 11. The commission may from time to time make and issue bonds to pay the cost of improvements under this act. Separate issues of bonds shall be made for each separate work of improvement, and no issue shall exceed the aggregate assessment made

for the improvement on which such issue of bonds is made. Such bonds shall show upon their face that the payment thereof is secured by an assessment for an improvement as provided in this act, and the proceeds of the assessment for the improvement on which such bonds are issued, shall be pledged for the payment of such issue of bonds. They shall by their terms become due and payable as determined by the commission not exceeding twenty years from the date of issue, and bearing interest not exceeding four per centum per annum, payable semiannually. Before issue such bonds must be approved as to amount, and countersigned by the comptroller. They shall also be signed by the president of the commission, and have the seal of the commission attached thereto. Such bonds shall be exempt from taxation in this state. They shall be sold by the comptroller at not less than par and accrued interest, and the proceeds thereof deposited in a national or state bank either at Albany or in one of the counties in which such improvement is made, to be approved by said comptroller and the president of the commission. But before any such deposit is made, the comptroller shall require from such bank a bond as security for repayment of the same, to be approved by him as to form, conditions and sufficiency of sureties which shall provide for the repayment to such commission upon demand of the moneys so deposited. Moneys received under the provisions of this act shall constitute a fund to be known as the river improvement fund and all requisitions of the commission for payments for the purposes of this act shall be made by the commission or the officers of the commission authorized by it so to do and countersigned by the comptroller, upon that part of the river improvement fund applicable to the improvement for which such requisition is made.

Certificates of indebtedness may be issued; river improvement certificates.

§ 12. To temporarily provide for the expenditures which must necessarily be made before the proceeds from the sale of the bonds herein authorized become available, the commission is hereby authorized to issue certificates of indebtedness bearing interest at five per centum per annum which may be used only for the payment of liabilities incurred under this act in anticipation of the sale of bonds therefor. A separate issue of such certificates may be made for each separate work of improvement, the amounts to be approved by the comptroller, not to exceed the aggregate esti-

mated cost for such improvement made as in pursuance of section four of this act. These certificates shall be issued in the name of the commission and shall be styled "river improvement certificates." They shall be signed by the president of said commission, countersigned by the comptroller, shall have the seal of the commission attached, be attested by its secretary and be payable principal and interest from the river improvement fund created by this act in like manner and effect as requisitions by the commission are herein provided to be paid.

Official seal; term of office; organization of Commission; compensation; quorum; secretary and employees; salaries and expenses.

§ 13. The commission shall have an official seal. The term of the member of the commission not holding a state office other than member of the commission, shall be five years. The commission shall organize under this act by the selection of one of its members as president who shall preside at its meetings, and perform such other duties as are provided by law, or directed by the commission. The member of the commission not holding a state office, other than as a member of the commission, shall not receive a salary, but shall be paid his necessary and reasonable expenses actually incurred in the prosecution of his duties and may also receive a just and reasonable per diem compensation to be fixed by his associate members of the commission, subject to the approval of the governor, for time actually employed by him in the work of the commission. Three members of the commission shall constitute a quorum at any hearing by the commission but a majority of the commission must concur in any determination of the commission and at least four members must concur in any determination for an improvement under this act. The commission is hereby authorized and empowered to employ a secretary and such engineers, stenographers, clerks and other subordinates as the duties imposed upon them by this act may require, and to fix and pay the reasonable salaries and expenses of such officers, and of all other subordinates for the purpose of proceedings by them under this act. The commission shall have power to charge to each improvement undertaken by it such portion of the expenses so incurred as it shall determine ratably and equitably is chargeable thereto and to include the same in the apportionment or assessment of the cost and expenses of such improvement.

Expenses of Commission, to what chargeable.

§ 14. The care, control, operation and maintenance of improvements provided for in this act shall devolve upon the commission, and the expenses thereof shall be a charge upon the various municipalities and properties according to the benefits derived therefrom respectively, to be collected in the same manner that the original cost and expense of the improvement was collected. Any person who shall open or close or cause to be opened or closed a gate or gates in any dam constructed under this act without the consent of the commission, or an officer thereof, shall be guilty of a misdemeanor.

Report of Commission.

§ 15. The commission shall annually on or before the first Monday in February in each year submit a written report to the legislature. This report shall contain

1. An exhibit of the personnel of the commission and of all engineers and other persons connected with the commission.
2. A financial statement showing fully and clearly the condition of the finances of the commission, the amounts and dates of maturity of all bonds and certificates of indebtedness, the amounts of money received and their sources; the amounts of money paid and the purposes for which the same was paid.
3. A statement of the several petitions received by the commission and the action taken thereon.
4. A descriptive statement of each work of improvement on which work has been done during the previous year.
5. A statement of the conditions of improvements previously completed and the results secured by the work of improvements in each case.

In addition to the details as outlined above, the commission shall report to the legislature such other matters as it shall deem proper.

Appropriation.

§ 16. The sum of ten thousand dollars or so much thereof as may be necessary is hereby appropriated out of any moneys in the treasury not otherwise appropriated to enable the commission to commence proceedings under this act. The provisions of this act, or the proceedings had or the work done in accordance therewith, shall not be construed as annulling or affecting any power of eminent domain, right, privilege or franchise heretofore created

or conferred by law or acquired thereunder nor to permit the actual construction of any dam upon lands which now constitute a private park under and pursuant to article eleven of chapter twenty of the laws of nineteen hundred or pursuant to law, without the consent of the owner of such lands.

§ 17. This act shall take effect immediately.

Law Transferring River Improvements to State Water Supply Commission

CHAP. 418, LAWS OF 1906.

AN ACT to transfer and confer the powers and impose and devolve the duties of the river improvement commission, as created and established by chapter seven hundred and thirty-four of the laws of nineteen hundred and four; upon the state water supply commission, as created and established by chapter seven hundred and twenty-three of the laws of nineteen hundred and five.

Became a law, May 11, 1906, with the approval of the Governor. Passed, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Transfer of powers of river improvement commission, to the state water supply commission.—Thirty days after the passage of this act, all of the powers and duties, of the river improvement commission as created and established by chapter seven hundred and thirty-four of the laws of nineteen hundred and four, shall be and hereby are transferred to, devolved upon and shall be exercised and performed by the state water supply commission, as created and established by chapter seven hundred and twenty-three of the laws of nineteen hundred and five. The state water supply commission shall have power and authority to establish rules and regulations to carry into effect chapter seven hundred and thirty-four of the laws of nineteen hundred and four, and subject to the provisions and limitations of this act, shall possess and exercise all powers conferred by said law upon the river improvement commission.

§ 2. Services of certain commissioners to cease; exception.

The term of office of the civil engineer member of the river improvement commission, shall continue under his original appoint-

ment, but he shall thereafter be known and be a member of the state water supply commission and his services, duties and compensation shall be the same as the other members of the state water supply commission after the passage of this act, and no services thereafter shall be required from or performed by the state engineer and surveyor, the attorney-general, the superintendent of public works, or the forest, fish and game commissioner as a member of the river improvement commission.

§ 3. Nothing in this act shall be construed to nullify, discontinue, change, modify or affect any proceedings commenced by and pending before the river improvement commission, but all such proceedings may be continued, completed and finished by the state water supply commission.

§ 4. All appropriations heretofore made to the river improvement commission and now unexpended amounting in the aggregate to three thousand seven hundred and sixty-three dollars and seventy-five cents, are hereby transferred and appropriated to the state water supply commission for its use.

§ 5. This act shall take effect immediately.

Law Amending the New York City Water Supply Act of 1905.

CHAP. 314, LAWS OF 1906.

AN ACT to amend chapter seven hundred and twenty-four of the laws of nineteen hundred and five, entitled "An act to provide for an additional supply of pure and wholesome water for the city of New York; and for the acquisition of lands or interests therein, and for the construction of the necessary reservoirs, dams, aqueducts, filters, and other appurtenances for that purpose; and for the appointment of a commission with the powers and duties necessary and proper to attain these objects," generally.

Became a law, April 24, 1906, with the approval of the Governor. Passed, three-fifths being present.

(Accepted by the city.)

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Section three of chapter seven hundred and twenty-four of the laws of nineteen hundred and five, entitled "An act

to provide for an additional supply of pure and wholesome water for the city of New York; and for the acquisition of lands or interests therein and for the construction of the necessary reservoirs, dams, aqueducts, filters and other appurtenances for that purpose; and for the appointment of a commission with the powers and duties necessary and proper to attain these objects," is hereby amended so as to read as follows:

§ 3. The board of estimate and apportionment upon the receipt of the said report or reports of the board of water supply may adopt, modify or reject the whole or any part of the same, and may cause such surveys to be made, and such further information to be obtained as it shall deem expedient to enable it to act intelligently in the premises. In case of the modification or rejection of the recommendations in said report or reports or any part thereof by the board of estimate and apportionment, the board of water supply in like manner as aforesaid shall prepare and submit to the board of estimate and apportionment a further report or reports, surveys, maps, plans, specifications, estimates and investigations and make such changes and modifications as shall seem proper to the board of estimate and apportionment, and shall continue so to do under the direction of the board of estimate and apportionment, until a map, plan or plans covering the entire work contemplated by this act shall be approved and adopted by the board of estimate and apportionment. The said map, plan or plans may be made and adopted in parts or sections from time to time and may be changed or modified either before or after adoption as the board of estimate and apportionment may deem necessary for the more efficient carrying out of the provisions of this act. The board of estimate and apportionment prior to the adoption of such map, plan or plans, or to a modification thereof shall afford to all persons interested a reasonable opportunity to be heard respecting the same and shall give reasonable public notice of such hearing whereat testimony may be produced by the parties appearing in such manner as the board of estimate and apportionment may determine, and each member of the said board is hereby authorized to administer oaths and issue subpoenas in any proceeding pending before them under this act. Notice of such hearing shall be given in addition to the above provision by mailing to the chairman and clerk of the board of supervisors of the county where the real estate to be acquired is situated, a notice of such hearing at least eight days

before the time named in said notice. A final map, plan or plans approved and adopted by the board of estimate and apportionment shall be executed in quadruplicate, one of which shall remain on file with the clerk of the board of estimate and apportionment, one shall be placed on file in the office of the board of water supply, one or a certified copy thereof shall be filed in the county clerk's office or register's office of each county in which any of the land affected thereby is situated, and one copy, or a certified copy thereof, shall be filed in the office of the commissioner of water supply, gas and electricity. Provided, however, that no reservoir, or other structure for the storage or impounding of water, shall at any time be constructed within the drainage area of the Esopus creek in the county of Ulster, other than that designated in the reports of William H. Burr, Rudolph Hering, and John R. Freeman to the Honorable George B. McClellan, mayor, chairman, board of estimate and apportionment of the city of New York, as to the Ashokan reservoir, the flow line of which shall not exceed elevation six hundred feet coast and geodetic survey datum.

§ 2. Section eleven of said act is hereby amended so as to read as follows:

§ 11. On filing the said oath, in the manner provided in the previous section, the city of New York shall be and become seized in fee of all those parcels of real estate which are on the maps in the fifth section referred to described as parcels, of which it has been determined that the fee should be acquired; and may immediately or at any time or times thereafter take possession of the same or any part or parts thereof without any suit or proceeding at law for that purpose; provided however that before the city of New York takes possession of the same it shall pay to the respective owner or owners of each of said parcels of real estate, a sum of money equal to one-half the assessed valuation of said real property as the same appears upon the assessment-roll of the town in which the same is situate for the year nineteen hundred and five. Deposit of the money to the credit of, or payable to the order of the owner, pursuant to the direction of the court, shall be deemed a payment within the provisions of this section, and, thereupon, the board of water supply of the city of New York, or any person or persons acting under their or its authority may enter upon and use and occupy in perpetuity all the parcels of real estate described in said map for the purpose of constructing

and maintaining on, in, under, or over the same, the said aqueducts, dams, and reservoirs, with the said blow-offs, sluices, culverts, bridges, tunnels, ventilating shafts, filters and other appurtenances, provided, however, that no buildings or improvements shall be removed or disturbed within one year from the date of the filing of the oaths of the commissioners unless notice is given to the owner of ten days, or to his attorney, of the intention to make such removal, and affording him an opportunity to examine the property with the commissioners and such witnesses as he may desire. If the owner of the property cannot be found with due diligence, and there is no attorney representing the said property or parcel, before removing, disturbing or destroying any of the buildings, or the improvements, the representative of the boards referred to in this act or of the corporation counsel shall cause measurements to be made of the buildings and photographs of the exterior views thereof, which measurements and photographs shall be at the disposition thereafter of the claimants, or their attorneys, in case such claimants or attorneys should appear and demand the same before the case is tried.

§ 3. Section thirteen of said act is hereby amended so as to read as follows:

§ 13. The said commissioners shall prepare a report, and copies thereof as may be required to which shall be respectively annexed the fourth and fifth, and if required, the sixth copies of the map or maps referred to in the previous sections of this act. The said reports shall contain a brief description of the several parcels of real estate so acquired, taken or affected, with a reference to the map or maps as showing the exact location and boundaries of each parcel; a statement of the sum estimated and determined upon by them as a just and equitable compensation to be made by the city to the owners or persons entitled to or interested in each parcel so taken, or as to which any right, title, interest, privilege or easement is taken, acquired or extinguished; and a statement of the respective owners or persons entitled thereto, or interested therein, but in all and each and every case and cases where the owners and parties interested, or their respective estates or interests are unknown, or not fully known to the commissioners of appraisal, it shall be sufficient for them to set forth and state in general terms the respective sums to be allowed and paid to the owners of, and parties interested therein generally, without specifying the name of estates or interests of such owners, or parties interested, or any or

either of them. Where loss, damage or expense, direct or consequential, has resulted to any duly incorporated railroad corporation, operating a steam railroad in any county in which land shall be acquired in pursuance of the provisions of this act, or by reason of any of the matters in this act involved, the board of estimate and apportionment of the city of New York, is hereby authorized and empowered to agree with such railroad corporation upon the compensation which shall be made to it for such loss, damage or expense, and, when so directed by the board of estimate and apportionment, the comptroller of said city shall issue corporate stock of the city of New York in payment thereof. In the event of no agreement being reached between said board and such railroad corporation, the commissioners of appraisal appointed to estimate damages for lands acquired in such county is hereby authorized and directed to pass upon such claim and to make awards therefor as provided in this act. They may also recommend such sums, if any, as shall seem to them proper to be allowed, to parties appearing in the proceeding, as expenses and disbursements including reasonable compensation for witnesses. They may also determine and recommend what sum if any ought to be paid to the general or special guardian of an infant, idiot, or person of unsound mind, or to an attorney appointed by the court to attend to the interests of any known owner or party in interest who has not appeared in the proceeding, for expenses or counsel fees.

§ 4. Section seventeen of said act is hereby amended so as to read as follows:

§ 17. The city of New York shall, within three calendar months after the confirmation of the report of the commissioners of appraisal, pay to the respective owners and bodies politic or corporate, mentioned or referred to in said report, in whose favor, any sum or sums of money shall be estimated and reported by said commissioners, the respective sum or sums so estimated and reported in their favor respectively, with lawful interest thereon, from the date of filing the oath and certified copies thereof as by this act required, deducting therefrom all sums of money paid on account thereof as provided in section eleven of this act. And in case of neglect or default in the payment of the same within the time aforesaid, the respective person or persons or bodies politic or corporate in whose favor the same shall be so reported, his, her, or their executors, administrators or successors, at any time or times, after application first made by him, her, or them, to the comptroller of the city of New York for payment thereof, may sue for and re-

cover the same, with lawful interest as aforesaid, and the costs of suit in any proper form of action against the city of New York, in any court having cognizance thereof, and it shall be sufficient to declare generally for so much money due to the plaintiff or plaintiffs therein by virtue of this act, for real estate taken or affected for the purpose herein mentioned, and the report of said commissioners, with proof of the right and title of the plaintiff or plaintiffs to the sum or sums demanded shall be conclusive evidence in such suit or action.

§ 5. Section thirty-one of said act is hereby amended so as to read as follows:

§ 31. The contracts, when so awarded, shall be executed in triplicate by the contractor or contractors on the one part and the board of water supply acting for the city of New York, on the other part. One of said originals shall be delivered to the contractor, and the other two shall be filed, one in the finance department and the other with the board of water supply. The work and materials called for by said contract shall be done and furnished under the direction and supervision, and subject to the inspection of the board of water supply, its engineers, supervisors and inspectors. No contract shall take effect until the board of water supply or a majority thereof shall certify thereon in writing that its acceptance will, in their judgment, best secure the public interest and the efficient performance of the work therein mentioned. No contract shall take effect until the employer of labor to be engaged in the construction of any of the work in this act provided for, shall give to the municipality in which such labor may be employed, a bond in the penal sum of five thousand dollars conditioned to save harmless and indemnify such municipality against any loss, expense or charge that said municipality may legally incur because of paupers or indigent employees brought in said municipality and having no settlement therein such bond to be approved by the chief executive officer of such municipality.

§ 6. Section thirty-five of said act is hereby amended so as to read as follows:

§ 35. The city of New York is hereby required to build and construct such highways and bridges as may be made necessary by the construction of any reservoir under this act, and to repair and forever maintain such additional highway bridges; and in case any bridge or highway thus constructed shall cross any railroad, it shall do so above or below the said railroad and not upon the same level. It shall be the duty of the board of water supply

of the city of New York, to provide proper police protection to the inhabitants of the localities in which any work may be constructed under the authority of this act and during the period of construction, against the acts or omissions of persons employed on such works or found in the neighborhood thereof; and to that end the said board is hereby authorized and required to appoint a sufficient number of persons to adequately police the said localities for the said periods. The said board shall also have power to remove such persons and to fix or charge their compensation in its discretion, which compensation shall be paid upon a certificate of the said board, by the city of New York, as part of the expense authorized to be incurred by this act. The said board shall give to each person so appointed a certificate of appointment and certified copies thereof, one of which shall be filed in the office of the sheriff of each county in which any work shall be in process of construction under this act and in which said person shall be authorized to perform his duties. Each of said persons so appointed shall be and have all the powers of a peace officer in the county where any work is being constructed under the authority of this act, and he shall at all times when on duty wear upon his clothing or have in his possession a shield or other suitable badge of authority which he shall at once exhibit to any person asking therefor. It shall be the special duty of the persons so appointed to prevent breaches of the peace and unlawful depredations and to arrest and bring before the proper magistrates persons employed on the said works or found in the vicinity thereof, who are guilty of offenses against the law punishable by death, imprisonment or fines, or persons whom they may have reasonable cause to believe to be guilty of any of such offenses. The sheriff of a county wherein a certificate of appointment of any such person as a peace officer is filed may cancel such certificate for cause, and shall immediately give notice in writing of such cancellation to the board of water supply of the city of New York, specifying the cause of such revocation. Such notice may be given by mail. On such cancellation the authority of such person as a peace officer shall immediately cease. Any expense necessarily incurred by a county, town or city in any criminal action or proceeding against any person employed on any work constructed or in process of construction under this act, or in the suppression of riots among persons employed on said work or in the prevention of the commission of crime by such persons, after being duly audited as required by law, shall constitute a claim in favor of such county, town or city against the city of New York,

and an action may be maintained on such audit as for money paid to the use of the city.

§ 7. Section thirty-seven of said act is hereby amended so as to read as follows:

§ 37. The city of New York or its representatives, shall not enter upon any lands not taken in pursuance of this act, for the purpose of preserving streams or watercourses from pollution or contamination, or of moving or causing to be moved any buildings, improvements or edifices on the ground that the same may contaminate the water supply, without making a provision for just compensation to the owner of said buildings or improvements for the removal or destruction thereof.

§ 8. Section forty-one of said act is hereby amended so as to read as follows:

§ 41. It shall be lawful for any municipal corporation or other civil division of the state within the watersheds of Esopus creek, the Rondout creek or the Catskill creek, in the counties of Ulster and Greene, at its own expense, to construct a pipe line or aqueduct connecting with any reservoir constructed therein under the provisions of this act, for the purpose of supplying water to such municipal corporation or other civil division of the state. The quantity of water that may be drawn by such municipal corporation or other civil division of the state from the said reservoir shall not exceed the proportionate quantity that is used by the city of New York, the proportion being calculated according to the number of inhabitants respectively of the city of New York and said municipal corporations or other civil divisions of the state as shown by the last preceding enumeration of the state of New York or the United States. The said municipal corporations or other civil divisions of the state shall pay to the city of New York a water tax or charge, founded upon the quantity of water consumed which rate or charge may be agreed upon between the board of water supply of the City of New York and the authorities of such municipal corporation or other civil division of the state or shall be fixed by the state water supply commission, which commission is hereby given power to fix such compensation after hearing all parties interested. In case any water shall be taken under the provisions of this act from the Esopus creek in the said county of Ulster, then and in that event and before any water shall be diverted from said Esopus creek, the city of New York shall, at the expense, cost and charge of the said city of New York and under a plan to be approved of by the common

council and the city engineer of the city of Kingston, build, construct, reconstruct, alter or change the sanitary sewers of said city of Kingston known as the first and eighth ward sewers, the trunk sewer of which follows the general line of the Tannery brook in said city of Kingston and which now discharges or flows into the Esopus creek, so that the same shall discharge into the Hudson river or into the Rondout creek. The city of New York shall be liable for all damages of every name and nature which may result from the building, construction, reconstruction, alteration or changing said sewers, and shall also at the expense, cost and charge of the said city of New York, but in the name of the city of Kingston, acquire by purchase or by the condemnation proceedings provided for by this act, all rights in and over private lands in the said city of Kingston, which it may be necessary to acquire in order to build, construct, reconstruct, alter or change said sewers. The city of New York in executing the said plan, may use for such purposes the public streets of the city of Kingston or any right of way or easement that the city of Kingston now has for the purpose of constructing or maintaining sewers.

§ 9. Section forty-two of said act is hereby amended so as to read as follows:

§ 42. The owner of any real estate not taken by virtue of this act and chapter seven hundred and twenty-three of the laws of nineteen hundred and five or of any established business on the first day of June, nineteen hundred and five, and situate in the counties of Ulster, Albany or Greene, directly or indirectly decreased in value by reason of the acquiring of land by the city of New York for an additional water supply or by reason of the execution of any plans for such additional water supply by the city of New York under the provisions of this act and chapter seven hundred and twenty-three of the laws of nineteen hundred and five, their heirs, assigns or personal representatives shall have a right to damages for such decrease in value. The board of water supply of the city of New York may agree with such person as to the amount of such damages, and if such agreement cannot be made such damages, if any, shall be determined in the manner herein provided for the ascertaining and determining the value of real estate taken under the provisions of this act, and the commissioners shall not be limited in the reception of evidence to the rules regulating the proof of direct damages. And the amount of such damages so agreed upon as aforesaid or so determined as aforesaid shall be payable and collectible in the same manner as is

herein provided in the case of awards made through the confirmation of a report of commissioners of appraisal. A person employed in a manufacturing establishment, or in an established business, or upon any lands and is not an owner or part owner thereof or of an interest therein, in the counties of Ulster, Albany and Greene, which manufacturing establishment, or established business is injured or destroyed, or which lands are taken or acquired under or because of the provisions of this act, who has been so employed continuously for six months prior to the first day of January, nineteen hundred and six, and who continues in such employment up to the time of such injury, destruction, taking or acquisition shall have a claim for damages against the city of New York equal to the salary paid such employee for the six months immediately preceding the first day of January, nineteen hundred and six. Such damages may be determined by agreement with the board of water supply of the city of New York. In case such agreement cannot be made such employee may maintain an action against the city of New York in the supreme court to recover such damages, not however to exceed the sum of the wages paid him for the six months immediately prior to the first day of January, nineteen hundred and six.

§ 10. This act shall take effect immediately.

Law Approving and Authorizing the Canaseraga Creek Improvement.

CHAP. 419, LAWS OF 1906.

AN ACT approving a final order made by the river improvement commission, pursuant to chapter seven hundred and thirty-four of the laws of nineteen hundred and four, on the eleventh day of April in the year nineteen hundred and six, for the improvement and regulation of the flow of Canaseraga creek in the towns of North Dansville, Sparta, West Sparta, Groveland and Mount Morris, in the county of Livingston, and authorizing the work of such improvement.

Became a law, May 11, 1906, with the approval of the Governor. Passed, three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The final order of the river improvement commission, made on the eleventh day of April, in the year nineteen

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hundred and six, by which it was determined after due proceedings had pursuant to the provisions of chapter seven hundred and thirty-four of the laws of nineteen hundred and four, that a proposed improvement and regulation of the flow of Canaseraga creek in the towns of North Dansville, Sparta, West Sparta, Groveland and Mount Morris, in the county of Livingston, be made, and directing the same to be made, is hereby approved. The river improvement commission is hereby authorized in accordance with the provisions of said act to do all things necessary for the completion of the work required for said improvement and regulation of the flow of Canaseraga creek in the towns and county aforesaid as singly directed by such final order to be made, and in conformity with the final map, detailed plans, specifications and estimates prepared by said river improvement commission, as duly certified by them and filed in the office of the county clerk of Livingston county.

§ 2. This act shall take effect immediately.

APPENDIX VIII.

Form of Public Notice Advertising Public Hearings of State Water Supply Commission.

Notice is hereby given that, pursuant to Section 3 of Chapter 723 of the Laws of 1905, the State Water Supply Commission will meet at.....in the.....of....., on the.....day of....., 19...., at.....o'clock in the.....noon of that day for the purpose of hearing all persons, municipal corporations or other civil divisions of the State of New York that may be affected by the execution of the plans of the.....for securing a new and additional supply of water, plans for which have been filed with the New York State Water Supply Commission, at its office, No. 23 South Pearl street, Albany, N. Y., where the same are open for public inspection; and for the purpose of determining whether said plans are justified by public necessity and whether the same are just and equitable to the other municipalities and civil divisions of the State of New York and to the inhabitants thereof affected thereby, and whether said plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which will result from the execution thereof.

The execution of such plans will affect lands situate in the county of.....will also affect the flow of water in streams flowing in or through said county of.....the riparian rights on said streams, and also the water rights of said streams.

All persons, municipal corporations and other civil divisions of the State of New York who have objection to the execution of said plans, in order to be heard thereon, must file such objections thereto in writing in the office of the State Water Supply Commission in the city of Albany, N. Y., on or before the.....

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day of....., 19.... Every objection so filed must particularly specify the grounds thereof.

No person, municipal corporation or local authority can be heard in opposition thereto except on objections so filed.

Dated, Albany, N. Y.,....., 19....

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.....
.....
State Water Supply Commission.

APPENDIX IX.

Financial Report.

From February 1, 1906, to February 1, 1907.

1906.

Feb.	1.	Balance of appropriation of 1905.....	\$21,628 37
June	11.	From River Improvement Fund.....	3,509 84
Oct.	1.	From appropriation of 1906.....	35,350 00
			<hr/> \$60,488 21

Disbursements.

Document and map files.....	209 35
Awning	12 50
Mounting maps	34 00
Printing	14 10
Rug and screen	11 25
Newspaper clippings	60 00
Postage	110 00
Stationery	223 65
Extra stenographer	69 90
Revised statutes	20 00
Telephone and telegraph	46 38
Express charges, water, ice and towels	46 49
Rent and office	487 50
River Improvement expenses.....	36 05
Traveling expenses, Commissioners..	2,798 44
Traveling expenses, officers.....	212 45
Compensation and salaries, Com- missioners	24,861 15
Salaries, officers	6,298 34
	<hr/> \$35,551 55
Balance, February 1, 1907	<hr/> \$24,936 66

